DON BOSCO INSTITUTE OF TECHNOLOGY, BANGALORE-74

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

Academic Year: SEP – DEC 2020

Calendar of Events for ODD Semester- Academic Year 2020-21

Week No.	Month	Day						No. of Working Days	Activities
		MON	TUE	WED	THU	FRI	SAT		
01	SEP		1	2	3	4	5	5	1st-Commenecement of ODD Semester(Online Classes)
02		7	8	9	10	11	12	6	
03		14	15	16	17 H	18	19	5	17th –Mahalaya Amavasya
04	SEP/ OCT	21	22	23	24	25	26	6	26th – Assignment – 1 Question paper submission
05		28	29	30	1	2 H	3	5	2nd - Gandhi Jayanthi 1st -3rd - Assignment –1 submission
06		5 IA-1	6 IA-1	7 IA-1	8	9	10	6	5th to 7th- IA1 Test
07		12	13	14	15	16	17	6	15th -17th-Project Phase Review-I
08		19	20	21	22	23	24	6	
09	OCT /NOV	26 H	27	28	29	30 H	31 H	3	26th -Vijaya Dashami,30th -Eid Milad 31st -Valmiki Jayanthi
10		2	3	4	5	6	7	6	2nd –Assignment– 2 Question paper submission 5th - 7th - Assignment –2 submission 2nd –Commencement of 1st year classes
11		9 IA-2	10 IA-2	11 IA-2	12	13	14 H	5	9th to 11th -IA2 Test 14th – Naraka Chaturdasi
12		16 H	17	18	19	20	21	5	16th - Balipadyami
13	NOV/ DEC	23	24	25	26	27	28	6	
14		30	1	2	3 H	4	5	5	3rd Kanakadasa Jayanthi 30th- Assignment–3 Question paper submission 4th - 5th - Assignment –3 submission
15		7 IA-3	8 IA-3	9 IA-3	10	11	12	6	7th to 9th – IA3 Test 10th – 15th Lab IA Exams
16		14	15	16	17	18	19 LWD	6	17th-19th - Project phase Review(Final) 19* Last working Day
17	DEC	21	22	23	24	25 H	26	5	25th - Christmas Day
18		28	29	30	31				

Co-ordinator

IQAC - Director

Principal

PRINCIPAL
Don Bosco Institute of Technology
Kumbalagudu, Mysore Road
Bangalore - 560 074

Don Bosco Institute of Technology, Bangalore

(NAAC Accredited Institution)

Academic Year 2020-2021

Calendar of Events for EVEN Semester (APR – SEP 2021)

Week No	Month	Week Days						Event
		Mon	Tue	Wed	Thu	Fri	Sat	
1	April-May	**19**	20	21	22	23	24	19-Commencement of Even Sem (4, 6 & 8 Sem)
2		26	27	28	29	30	1	1-May Day
3	May	3	4	5	6	7	8	
4		10	11	12	13	14	15	14-Ramzan
5		17	18	**19**	20	21	22	19-Commencement of Even Sem (2 Sem)
6		24	25	26	27	28	29	27,28&29-IA-I (4,6&8 Sem)
7	May-June	31	1	2	3	4	5	
8		7	8	9	10	11	12	12-Parent's Meet-1
9		14	15	16	17	18	19	
10		21	22	23	24	25	26	24,25&26-IA-II (4,6&8 Sem), IA-I (2 Sem) & AAA-I
11	June-July	28	29	30	1	2	3	
12		5	6	7	8	9	10	10-Parent's Meet-2
13		12	13	14	15	16	17	16&17-IA-III (8 Sem)
14		19	**20**	21	22	23	24	20-LWD (8 Sem), 21-Bakrid, 22-Theory Exam (8 Sem) Start
15		26	27	28	29	30	31	28,29&30-IA-III(4&6 Sem) & IA-II(2 Sem), 30- Theory Exam (8 Sem) End, 31-Project Exhibition
16	August	2	3	4	5	6	7	2-Viva-voce (8 Sem) Start, 6- Viva-voce (8 Sem) End, 7-LWD (4&6 Sem), 2to7-Feedback
17		9	10	11	12	13	14	9-Lab Exam (4&6 Sem) Start

18		16	17	18	19	20	21	19-Lab (am (4&6 Sem) End, 19-Moharam, 20-VaraMahalakshmi
19		23	24	25	26	27	28	23-Theory Exam (4&6 Sem) Start, 26,27&28-IA-III(2 Sem)
20	August-September	30	31	1	2	3	4	1,2,3-AAA-II
21		6	7	8	9	10	11	9-Theory Exam (4&6 Sem) End, 10-Ganesha Festival, 11-Link Holiday/Alumni Meet-2021
22		13	14	15	16	17	18	13-Commencement of ODD Sem
23		20	21	22	23	24	25	
24		27	28	29	30			

Calling Parents	Tests & Marks Display	Public Holiday	Activities/Feedback

Target for Even Semester*		Duration		
Guest Lecture	03 Min	2hrs/each		
Seminar/Webinar	03 Min	2hrs/each		
Workshop/Hands on Training	01 Min	2Days(15hrs)		
VAC/Add on Course	01 Min	5Days(30hrs)		
Skill Development/T&P	01 Min	5Days(30hrs)		
Conference/Symposium	01 Min	3Days(20hrs)		
Industrial Visit	02 Min	1Day/each		
Project Exhibition	01 Min	Major & Mini Project		

* Each Department should plan to conduct the above activities with the availability of resource persons within end of the semester

Total number of working days: **93 days** (4&6 Sem)

-sd-
Academic convener

IQAC
-sd-
IQAC Director
10/3/2021

-sd-
Principal
PRINCIPAL
Don Bosco Institute of Technology
Kumbalagudu, Mysore Road

Visvesvaraya Technological University

"Jnana Sangama" Belagavi-590018, Karnataka State, India

Dr. A. S. Deshpande B.E., M.Tech., Ph.D.
Registrar

Phone: (0831) 2498100
Fax: (0831) 2405467

Ref: VTU/BGM/SO2/2020-21/ 4162

Dated: 4 DEC 2020

NOTIFICATION

Subject: Revised Academic Calendar for ODD semester 2020-21(Tentative) regarding...

Reference: Hon'ble Vice-Chancellor Approval dated 02.12.2020

Revised Academic Calendar for III, V, and VII semesters of B.E./B.Tech./B.Plan./B.Arch., and IX semester of B.Arch., III & V semester of MCA, III semesters of MBA, M.Tech., and M.Arch., for the academic Year 2020-21 is hereby notified as enclosed.

The Principals of Affiliated, Constituent, and Autonomous Engineering Colleges are hereby informed to bring the contents of this Notification to the notice of all the concerned.

Sd/-
REGISTRAR

Encl: Revised Academic Calendar for odd semester of 2020-21(Tentative)

To,

1. The Principals of all affiliated/ constituent /Autonomous Engineering Colleges under the ambit of VTU Belagavi.
2. The Chairpersons of all Departments, Centres for PG Studies in Belagavi, Kalaburgi, Muddenahalli, and Mysoru.

Copy to.

1. To the Hon'ble Vice-Chancellor through the secretary to VC, VTU Belagavi for information
2. The Registrar (Evaluation), VTU Belagavi for information.
3. The Regional Directors (I/c) of all the regional offices of VTU for circulation.
4. The Special Officer CNC VTU Belagavi for uploading on VTU website
5. PS to Registrar VTU Belagavi
6. All the concerned Special Officer/s and Caseworker/s of the academic section, VTU, Belagavi

04.12.2020

REGISTRAR

Revised Academic Calendar of VTU, Belagavi for ODD Semester of 2020-21 (Tentative)

	I Sem B. E. / B. Tech. / B. Arch./B.Plan	I sem M.Tech./MBA /MCA/M.Arch.	III, V B. E. /B. Tech./B.Plan/ B.Arch & VII sem BPlan /BArch & IX Sem B. Arch.	VII Sem B. E. /B. Tech	III & V Sem MCA	III Sem MBA	III Sem M. Tech.	III Sem M. Arch.
Commencement of ODD Semester	**14.12.2020**	**Will be announced later**	**01.09.2020**	**01.09.2020**	**01.09.2020**	**01.09.2020**	**01.09.2020**	**01.09.2020**
Last Working day of ODD Semester	**25.03.2021**		**16.01.2021**	**16.01.2021**	**16.01.2021**	**16.01.2021**	**16.01.2021**	**16.01.2021**
Practical Examinations	29.03.2021 Onwards#		21.01.2021 Onwards#	21.01.2021 Onwards#	08.02.2021 Onwards#	--	21.01.2021 Onwards#	--
Theory Examinations	12.04.2021 To 30.04.2021		08.02.2021 To 27.03.2021	08.02.2021 To 27.03.2021	21.01.2021 To 06.02.2021	21.01.2021 To 19.02.2021	28.01.2021 To 13.02.2021	21.01.2021 To 06.02.2021
Internship			---	**29.03.2021 To 10.04.2021**	---	---	---	---
Internship Viva-Voce			---	---	---	---	**15.02.2021 To 22.02.2021**	---
Professional training / Organization study			---	---	---	**22.02.2021 To 03.04.2021**	---	---
Commencement of EVEN Semester	**03.05.2021**		**29.03.2021**	**12.04.2021**	**15.02.2021**	**05.04.2021**	**23.02.2021**	**08.02.2021**

NOTE:

- VII Semester B. E. / B. Tech. students shall have to undergo **Internship** as per circular of University **VTU/Aca/2019-20/85, dated 12.05.2020.**
- I Semester B. E/ B. Tech / B. Arch Students shall compulsorily undergo **Induction Program** for 01 Weeks.
- The classroom sessions for all the semesters would be in **ONLINE mode/blended mode** until further orders.
- The Institute needs to function for **six days** a week with additional hours (**Saturday is a full working day).**
- The faculty/staff shall be available to undertake any work assigned by the university.
- If any of the above dates are declared to be a holiday then the corresponding event will come into effect on the next working day.
- (#) Notification regarding the Calendar of Events relating to the conduct of **University Examinations** will be issued by the Registrar (Evaluation) from time to time.
- Academic Calendar may be modified based on guidelines/directions issued in the future by MHRD/UGC/AICTE/State Government.
- Revised Academic Calendar is also applicable for **Autonomous Colleges.**
- The MBA students are permitted to carry out **project work** in blended mode (ONLINE/OFFLINE). More emphasis on OFFLINE mode wherever feasible.

04-12-2020.

REGISTRAR

ವಿಶ್ವೇಶ್ವರಯ್ಯ ತಾಂತ್ರಿಕ ವಿಶ್ವವಿದ್ಯಾಲಯ, "ಜ್ಞಾನಸಂಗಮ ಆವರಣ", ಬೆಳಗಾವಿ
Visvesvaraya Technological University, "Jnana Sangama"
Belagavi - 590 018, Karnataka State

Prof. A.S.Deshpande B.E., M.Tech., Ph.D
REGISTRAR
Phone : (0831) 2498100
Fax : (0831) 2405467

Ref. No.: VTU/Aca/2019-20/ 95

Date: 12 MAY 2020

Internship - Circular

This is in continuation to the UGC letter dated 29/04/2020 vide which the guidelines on examinations and calendar were issued. It was made clear that the guidelines are advisory in nature . Thesaid guidelines also provide a framework for internship etc. However, keeping in view the current situation of lock down across the country due to Covid-19, the colleges may also take following measures for internship and other related activities:

1. Allow the students to take up 'online internships/ activities' including the activities that can be carried out digitally or otherwise from home.
2. Engage them to work as interns on ongoing projects.
3. Delay the start date for internship.
4. Reduce the period of internship clubbing with assignments etc.

Registrar

To,

1) The Principals of all the affiliated , Constituent and Autonomous colleges of VTU.

ವಿಶ್ವೇಶ್ವರಯ್ಯ ತಾಂತ್ರಿಕ ವಿಶ್ವವಿದ್ಯಾಲಯ
"ಜ್ಞಾನ ಸಂಗಮ", ಬೆಳಗಾವಿ-ಜಿಲ್ಲೆ-590018, ಕರ್ನಾಟಕ, ಭಾರತ
Visvesvaraya Technological University
(State University of Government of Karnataka Established as per the VTU Act, 1994)
"Jnana Sangama" Belagavi-590018, Karnataka, India
Phone: (0831) 2498100, Fax: (0831) 2405467, Website: vtu.ac.in

Dr. A. S. Deshpande B.E., M.Tech., Ph.D
Registrar

Phone: (0831) 2498100
Fax: (0831) 2405467

Ref: VTU/BGM/Academic/SO2/2020-21/6416

Dated: -1 MAR 2021

REVISED - NOTIFICATION

Subject: Revised - Academic Calendar for the Regular and Lateral Entry III semester students of B.E./ B.Tech., for the academic year 2020-21.

Reference:

1. VTU/BGM/SO2/2020-21/4162, dated 04.12.2020
2. VTU/BGM/Academic/SO2/2020-21/5086, dated 05.01.2021
3. Approval of Hon'ble Vice-Chancellor dated 01.03.2021

The Revised Academic Calendar of the University for the III semester regular and lateral entry students for the academic year 2020-21 is hereby notified as enclosed.

The Principals of All Colleges of Engineering are hereby informed to bring the contents of this Notification to the notice of all the concerned.

Sd/-
REGISTRAR

To,

1. The Principals of all Engineering Colleges under the ambit of VTU.

Copy to:

1. The Hon'ble Vice-Chancellor, through Secretary to VC, VTU, Belagavi.
2. The Registrar (Evaluation), VTU, Belagavi.
3. Regional Directors of all Regional Offices of VTU.
4. The Special Officers of Academic Section of VTU, Belagavi.
5. The Caseworkers of the Academic Section of VTU, Belagavi.
6. PG Coordinators of all PG Centers of VTU.
7. The Special Officer, CNC, VTU, Belagavi, to update the information on the VTU website.

REGISTRAR

Revised Academic Calendar of VTU, Belagavi
for III Semester B.E./B.Tech. of 2020-21

	REVISED dates for Regular & Lateral Entry III Semester B.E./B.Tech. students
Commencement of ODD Semester	01.09.2020
Last Working day of ODD Semester	**10.03.2021**
Theory Examinations	**15.03.2021 To 31.03.2021**
Practical Examinations	**05.04.2021 To 09.04.2021**
Internship	---
Internship Viva-Voce	---
Professional training / Organization study	---
Commencement of EVEN Semester	**12.04.2021**

- The Institute needs to function for **six days** a week with additional hours **(Saturday is a full working day)**. If required the college can plan to have extra classes even on Sundays also
- The faculty/staff shall be available to undertake any work assigned by the university.
- If any of the above dates are declared to be a holiday then the corresponding event will come into effect on the next working day.
- Notification regarding the Calendar of Events relating to the conduct of **University Examinations** will be issued by the Registrar (Evaluation) from time to time
- Academic Calendar may be modified based on guidelines/directions issued in the future by MHRD/UGC/AICTE/State Government.
- Revised Academic Calendar is also applicable for **Autonomous Colleges.** In case if any changes are to be affected by Autonomous Colleges in the academic terms and examination schedule, they could do so with the approval of the University.

01.3.2021

REGISTRAR

DON BOSCO INSTITUTE OF TECHNOLOGY

BANGALORE-560074

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

TRANSMISSION ANDDISTRIBUTION_(18EE43)

MODULE 1

1.Discuss the advantage of high voltage transmission

2,.A transmission line conductor at a river crossing is supported from two towers at height of50 and 80 meter above water level. The horizontal distance between the tower is 300 meters.If the tension in the conductor is 2000 kg. Find the clearance between the conductor and water at a point midway between the towers. Weight of conductor per meter = 0.844 kg. Assume that the conductor take the shape of parabolic curve.

3.Draw a schematic diagram and hence briefly describe feeders, distributors and service mains and short note on vibration of conductors.

4.A transmission line has a span of 275m between level supports. The conductor has an effective dia of 1.96cm and weighs 0.865kg/m. The ultimate strength is 8060kg.If the conductors has ice coating of radial thickness 1.27cm and is subjected to a wind pressure of 3.9gm/cm2 of projected area ,calculate sag for a safety factor of 2. Weight of ice is 0.91gm.

5..With usual notation derive an expression for the sag of at transmission line when the supports are at equal level.

6..Draw the line diagram of atypical transmission and distribution system indicating the standard voltage.

7.Explain the various supporting structures used for overhead transmission lines.

8.. With usual notation derive an expression for the sag of at transmission line when the supports are at different level.

9.The towers of height 30m and 90m respectively support a transmission line conductor at water crossing. The horizontal distance between the towers is 500m.If the tension in the conductor is 1600Kg,find the minimum clearance of the conductor and water and also clearance midway between the supports .Weight of conductor is 1.5Kg/m. Bases of the towers can be considered at water level.

10.Define string efficiency.

11.Derive the expression for string efficiency of a 3 disc string and the methods of improving string efficiency.

12.Define Factor of safety. Explain the effect of ICE coating on Transmission line

13.Explain pin type and shackle type insulator with its advantages and Disadvantages.

14.Explain strain ,shackle insulators with its advantages and disadvantages.

MODULE 2

1.Calculate Inductance due to internal flux linkage.

2.Calculate Inductance due to external flux linkage.

3.EXplain the terms self GMD and Mutual GMD.

4.write short notes on transposition of transmission lines.

5.Derive the expression for capacitance of the symmetrical 3 phase line.

6. Explain skin effect and proximity effect.

7. A single phase transmission line has two parallel conductors 3m apart, the radius of each conductor being 1cm. Calculate the capacitance of the line per km.

8.Derive the expression for capacitance of a single phase two wire line.

Capacitance of a Single Phase Two-Wire Line.

9. Find the capacitance between the conductors of a single-phase 10 km long line. The diameter of each conductor is 1.213 cm. The spacing between conductors is 1.25 m. Also find the capacitance of each conductor neutral

10. What are the advantages of bundled conductors?

11. A conductor is composed of seven identical copper strands each having a radius r. Find the self-GMD of the conductor.

MODULE 3

1.with neat phasor diagram explain the performance analysis of short transmission line.

2. Explain the nominal T method for obtaining the performance calculations of medium transmission line. Draw the corresponding vector diagram, hence obtain the expression for regulation and A,B,C,D constants for the same.

3. A 110KV ,50HZ,3 phase transmission line delivers a load of 40 MW at 0.85 pf lagging at the receiving end. The generalized constants of the transmission line are A=D=0.95<1.4· B= 96<78·,C=0.0015<90 .Find the regulation of the line and charging current use Nominal T Method.

4. A 3 phase short transmission line delivers 3MW at a pf of 0.8 lagging to a load.If the sending ends voltage is 33KV.Determine (i) receiving end voltage (ii) Line current (iii) transmission efficiency (iv) Regulation .the resistance and reactance of each conductor are 5Ω and 8Ω respectively

5.3 phase ,50 HZ,150 km overhead transmission line has the following constants .resistance /km/phase=0.1Ω,inductive reactance /km/phase =0.5Ω , capacitive susceptance /km/phase =3e-6℧.Find (i) sending end current (ii) sending end voltage (iii) sending end pf (iv) efficiency, when supplying a balance load of 50MW at 110KV with a lagging P.f of 0.8 .use Nominal T Method.

6. Derive an expression for sending end voltage and current for long transmission line using Rigorous solution.

7. A three phase, 200 km long transmission line has following parameters ; R = 0.15 Ω / km ; X =0.2 Ω / km and B =1.2 e-6mho/km.Determine the (i) sending the voltage, sending end current (iii) regulation (iv) efficiency using rigorous method, if the line supplies a lood of 20 MW, o.8 pf at 110 kV.

MODULE 4

1.Explain the factors effecting corona.

2. A 132 KV line with 1.956cm dia .conductors is built so that corona take place if the line voltage exceeds 210KV(rms).If the value of potential gradient at which ionization occurs can be taken as 30 KV/cm.Find the spacing between the conductors.

3. What are the methods of grading of cables ? explain inters heath grading

of cable

.4.Derive an expression for the insulation resistance of single core cable.

5.Derive an expression for the capacitance of single core cable.

6.Explain the following terms with reference to corona:

i) Critical disruptive voltage
ii) Critical visual disruptive voltage

7.Derive an expression for sending end voltage and current for long transmission line using Rigorous solution.

8.Explain the phenomenon of corona.

9.Explain about PVC,Paper,Cross linked polythene insulating materials.

10.Derive an Expression for critical disruptive voltage.

11.Describe different factors effecting corona and corona loss.

12.Explain about LT cables,Belted Cables.

13.Explain about screened Cabes and pressue cables.

14. A three phase 220 kV line,60 Hz, 150 km long transmission consist of conductors of

diameter 2.8 cm, spaced 2 m apart equilaterally . The dielectric strength of air is 30 kV /cm , temperature is 38° C and atmospheric pressure is 76 cm of mercury . The irregularity factor of the conductor surface is 0.89 . determine the corona loss in the line

MODULE 5

1. 1.Define

(a) Reliability

(b) Power quality

(c)Reliability aids

2. Explain the requirements of good distribution system.

3.. Explain the effect of disconnection of neutral in a 3 phase 4 wire systems.

4. Explain Radial and Ring main distributor.

5. Two wire feeder XYZ has a load at Z and 0f 100A At UPF at Y of 100A at pf 0.8 lead with respect to receiving end voltage. The impedance of section XY is (0.08+j0.20)ohm and that of YZ is(0.06+J0.10) ohm. If the voltage at the far end Z is to be maintained at 400v.Determine voltage at (i) X and (ii) Y

6. Write the comparison between ac and dc cable.

7. write limitations on distribution system.

8. Explain the secondary distribution system (i) 3 phase distribution (ii) single phase two wire system.

9.write note on power quality.

10.with neat diagram ,explain the concept of AC distribution system with concentrated loads.

11. Explain 3-phase 4 wire star connected unbalanced loads for AC distribution system.

12. A single phase AC distributor AB 300 meter long is fed from end A and is loaded as under.i) 100 A at 0. 707 pf lagging 200m from point A (ii) ii) 200A at 0.8 pf lagging 300m from point A.The load resistance and reactance of the distributor is 0.20 and 0.10 per kilometer.Calculate the total voltage drop in the distributor. The power factors refer to the voltage atthe far end.

26/05/2021

RAHUL.S
IV th Sem
EEE
REG NO: 1DB20EE409

10/10 Rs
31/05/21

SUBJECT : TRANSMISSION & DISTRIBUTION

SUBJECT CODE: 18EE43

ASSIGNMENT-1

① Discuss the advantage of High voltage transmission

↳ The advantages of high voltage transmission are:

- ☆ Reduced line current
- ☆ Reduction in power loss
- ☆ Reduced conductor volume
- ☆ Greater efficiency
- ☆ Improved voltage regulation
- ☆ less installation cost/Km
- ☆ Land cost: land required to lay transmission lines decreases with increase in vlg.

② A transmission line conductor at a river crossing is supported from the towers at height of 50 and 80m above water level. The horizontal distance b/w the towers is 300 mts. If the tension in the conductor is 2000 kg find the

RAHUL S
IV th SEM
EEE
REG NO: 1DB20EE409

14/07/2021

ASSIGNMENT-2

10/10
31/03/21

SUBJECT: TRANSMISSION DISTRIBUTION & UTILIZATION

SUBJECT CODE: 18EE43

(1) Explain the factors effecting Corona

↳ The Corona has following effects

☆ Due to corona there is corona loss which increases in rainy conditions. This effects the efficiency of transmission line

☆ Audible noise in the human hearing range is produced during corona. During fair whether conditions this noise is negligible but in rainy conditions. it can reach up to 60 dB close to the transmission line and could become very annoying.

☆ The current produced by the pulsative corona produces electromagnetic fields which have undesirable effects on animals and human beings.

☆ The corona produces radio and television interference to nearby locations.

☆ The corona effect attenuates the high voltage surges along the transmission line and reduces the effects produced by surges.

29/09/2021

10/10 & 27/09/21

RAHUL. S
IV th SEM
EEE
1DB20EE409

ASSIGNMENT - 3

SUBJECT : TRANSMISSION DISTRIBUTION & UTILISATION

SUBJECT CODE : 18EE43

---

1) Define

a) Reliability → It can be defined as the probability that an item will perform a required function without failure under stated conditions for a stated period of time.

b) Power Quality → It refers to maintenance of voltage waveform undistorted, balanced at rated frequency and at rated voltage [magnitude].

c) Reliability Aids → They are :-

i) Mastering Information - Aggreated data is information & this helps to take decisions. Information in such a resource that can be utilized to use all other resources in the best

DON BOSCO INSTITUTE OF TECHNOLOGY

Kumbalagodu, Mysore Road, Bengaluru – 560074
www.dbit.co.in Ph:+91-80-28437028/29/30 Fax:+91-80-28437031

Department of Electrical & Electronics Engineering

Surprise test

Transmission and Distribution-18EE43

Answer any two question from each part carrying 5 marks

PartA

1. Explain the requirements of good distribution system

Or

2. write limitations on distribution system

Part B

3. A single-phase AC distributor AB 300 meter long is fed from end A and is loaded as under. i) 100 A at 0. 707 pf lagging 200m from point A (ii) ii) 200A at 0.8 pf lagging 300m from point A. The load resistance and reactance of the distributor is 0.20 and 0.10 per kilometer.Calculate the total voltage drop in the distributor. The power factors refer to the voltage at the far end.

Or

4 .,write note on power quality.

24/07/21

RAHUL S
IV th SEM
EEE
1DB20EE409

SURPRISE TEST

TRANSMISSION, DISTRIBUTION & UTILIZATION

10/10 26/07/21

PART-A

1A :- The Requirements of good distribution system are :-

- ★ The continuity in the power supply must be ensured Thus System should be reliable.
- ★ The specified consumer voltage must not vary more than the prescribed limits. As per indian electricity rules, the variation must not be beyond ± 5% of the specified voltage.
- ★ The efficiency of the lines must be as high as possible
- ★ The system should be safe from consumer point of view. There should not be leakage
- ★ The layout should not affect the appearance of the site or locality.
- ★ The System should be economical.

5

Though the A.C transmission and distribution is used, still for certain applications such as d.c motors, electromechanical work, batteries, electric traction etc the DC supply is must. Hence along with A.C D.C distribution is also equally important. In a D.C distribution, dc generators are used in the generating

Stations or A.C is converted to D.C using the converters like mercury are rectifiers, rotory converters etc. at the substations, then the D.C supply is distributed to the consumers as per requirement.

PART- B

4A:- Power Quality refers to maintenance of voltage waveform undistorted, balanced at rated frequency and at rated voltage. [magnitude]

Power Quality proddems

i) Voltage Dip

★ A decrease of voltage level between 10% to 90% of normal voltage at power frequency can be called as voltage dip or voltage sag.

★ This may be due to faults on transmission or distribution network, in consumer installation or may be due to switching on of heavy loads or large motors

ii) Voltage Swell

★ It is due to start or Step of heavy loads.

iii) Harmonic distribution

★ Due to presence of harmonics, voltage and current waveforms are having non-sinosoidal shape

★ Harmonic distribution reduces the efficiency of electrical machines, overheating of cables and

Voltage fluctuations

★ Oscillations of voltage value, it's amplitude be termed as voltage fluctuation.

★ Flickering of lighting, screens are due to voltage fluctuations.

v) Noise

★ Super imposing of high frequency signals on the waveform of power frequency is noise.

★ It can cause data processing errors, data loss.

vii) Voltage Unbalance.

★ If the voltage variations in 3-ϕ system in which voltage magnitudes and phase angle difference b/w them are not equal. It is termed as voltage unbalance

Causes are:-

★ Incorrect distribution of loads on 3-ϕ and it may occur due to fault in the system.

USN | I | D | B | | | | | | |

Wayanamac Education Trust ®

DON BOSCO INSTITUTE OF TECHNOLOGY

Kumbalagodu, Mysore Road, Bengaluru – 560074
www.dbit.co.in Ph:+91-80-28437028/29/30 Fax:+91-80-28437031

Department of Electrical and Electronics Engineering

Internal Assessment Test-III

Course Name: **TRANSMISSION AND DISTRIBUTION** Course Code: **18EE43** Date:28/07/2021

Semester & Section: **IV** Max marks: 30 Time:10-11

Note: Answer any Two full questions, choosing only One full question from each Module.
Each full question carry maximum of 15 marks

Q NO.	Module-5 Questions	MARKS	CO	RBTL
1.	1.Define (i) Reliability *(ii) Power quality* (iii)Reliability aids	07	Co-4	RBTL-1
	(b) Explain the requirements of good distribution system. **OR**	8	Co-4	RBTL-2
2	(a)Write the comparison between ac and dc cable.	10	Co-4	RBTL-6
	(b) write note on power quality.	5	Co-4	RBTL-6
	Module-2 Questions			
3.	a) Calculate Inductance due to internal flux linkage b) Calculate Inductance due to external flux linkage **OR**	8	Co-2	RBTL-3
4.	a) Explain Radial and Ring main distributor.	7 8	Co-2 Co-4	RBTL-3 RBTL-2
	b) Explain the effect of disconnection of neutral in a 3 phase 4 wire systems.	7	Co-4	RBTL-2

Name & Signature of Course Instructor

Padmashree V. Kulkarni

Scrutinized by (Name & Signature)

1)

2)

3) HOD-

Scheme & Solution: Internal Assessment Test - III

Course Name: Transmission & distribution Code: REE47

1) Define

① Reliability: It is defined as probability that an product will perform a required function without failure under stated condition for stated period of time. ↳ (2)

② Power quality:- It is defined as the maintance of voltage waveform undistorted balanced at rated frequency and at rated voltage. ↳ (2)

③ Reliability aids: The required standard to main good reliability, they are
(a) system components & configuration (b) standardisation (c) Good monitoring information ↳ (3)

(7)

1(b) The requirements of good distribution system are

× system should be Economical
⊗ operational safety of the Installation
⊗ Easy adaption
⊗ Good quality of power supply
⊗ line should not be overloaded
⊗ Layout should be good.
⊗ Efficiency of the lines should be good.
⊗ Continuity of power supply
⊗ system should be reliable

2(a) comparison between ac & dc cables

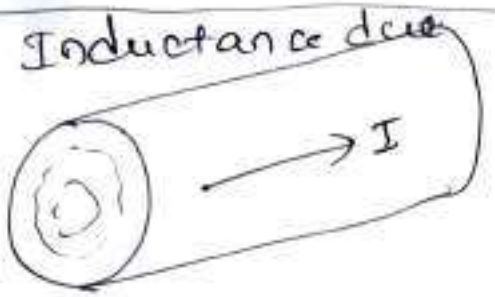
* Ac cables will be single insulated while dc cables double insulated
* Thickness of dc cables strands will be smaller than Ac cables
* current carrying capacity of Dc cable is better than AC cable
* Dc wires are double insulated whereas AC cables are single insulated
* They are much easier to transmit current for long distance than DC.

2(b) power quality refers to maintaince of voltage with undistorted, balanced at rated frequency and at rated voltage

The most common type of power quality problems are

1. voltage dip
2. voltage swell
3. Harmonic distribution
4. voltage fluctuation
5. Noise
6. Voltage unbalance

Inductance due to Internal flux linkage.



$mmf = \oint H \cdot ds = I$

magnetic field Intensity at a point x metre from the centre of the conductor be H_x

$$\oint ds = 2\pi x$$

$$H_x 2\pi x = I_x \quad \therefore H_x = I_x / 2\pi x$$

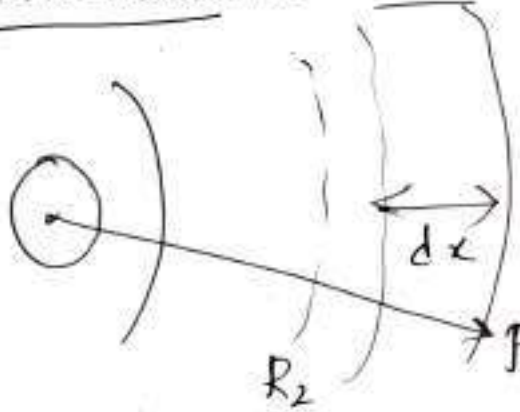
$$\frac{I_x}{\pi x^2} = \frac{I}{\pi r^2} \qquad I_x = \frac{\pi x^2}{\pi r^2} \cdot I$$

$$I_x = \frac{I^2}{r^2} I$$

$$H_x = \frac{x}{2\pi r^2} \cdot I \ AT/m$$

$$B_x = \mu H_x = \frac{\mu x}{2\pi r^2} \cdot I$$

Inductance due to External flux linkage



the field Intensity at thin point in the

$$2\pi x H_x = I$$

$$B_x = \mu H_x = \frac{\mu I}{2\pi x} \ wb/m^2$$

$$d\phi = B_x \cdot dx$$

$$d\phi = \frac{\mu I}{2\pi x} dx$$

Total flux linkage b/w D_1 & D_2 are obtained by integrating $d\psi$ from D_1 & D_2

$$\psi_{12} = \int_{D_1}^{D_2} \frac{\mu_0 I}{2\pi x}\, dx = \frac{\mu_0 I}{2\pi} \int_{D_1}^{D_2} \frac{dx}{x}$$

$$\psi_{int} = \frac{\mu_0 \mu_r I}{8\pi} = \frac{4\pi \times 10^{-7} \mu_r I}{8\pi}$$

$$\boxed{\psi_{int} = \frac{1}{2} \times 10^{-7} \mu_r I}$$

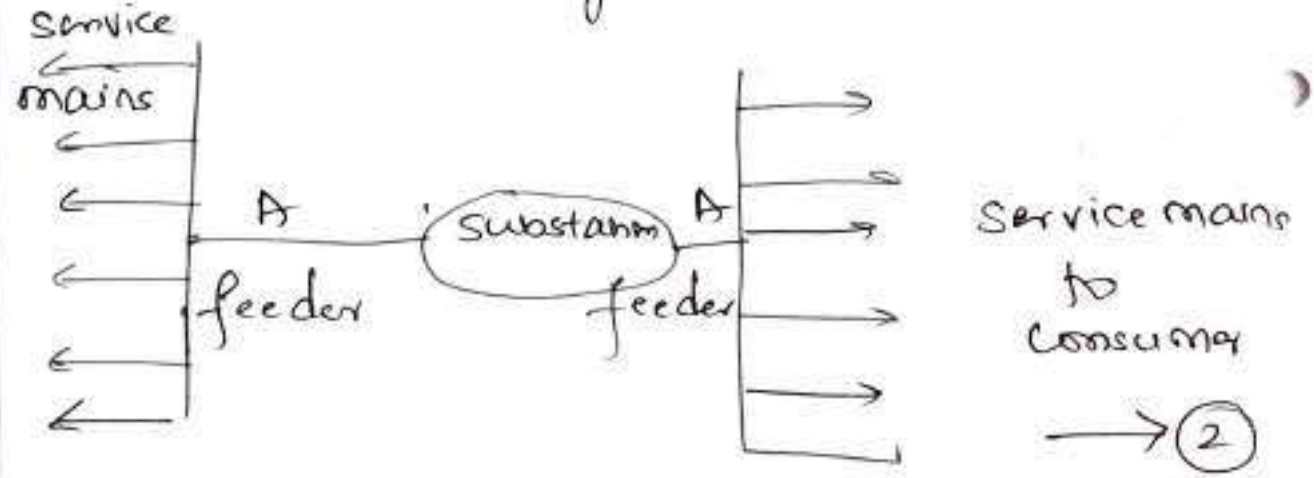
$$L_{int} = \frac{\psi_{int}}{I} = \frac{10^{-7}}{2} \text{ H/m}$$

$$\psi_{12} = 2 \times 10^{-7} I \ln\left(\frac{D_2}{D_1}\right)$$

$$L_{12} = \frac{\psi_{12}}{I} = 2 \times 10^{-7} \ln\left(\frac{D_2}{D_1}\right)$$

∴ Total flux linkage: $\frac{\mu_0 I}{8\pi} \int_r^{\infty} \frac{\mu_0 I}{2\pi x}\, dx$ — (7)

4(a) Explain Radial & Ring main distributor

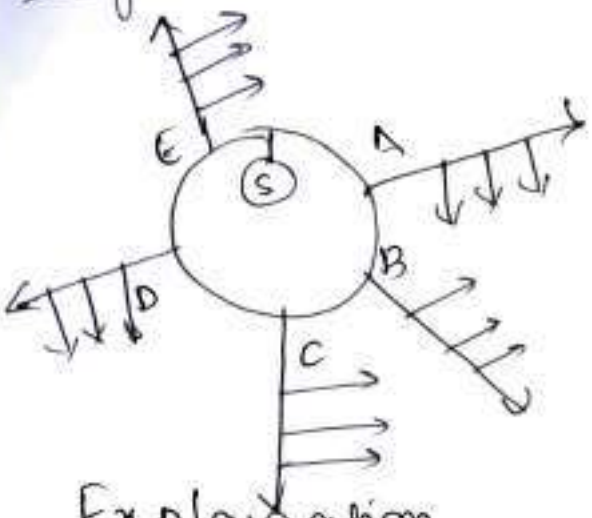


→ (2)

Explanation — (2)

Explain

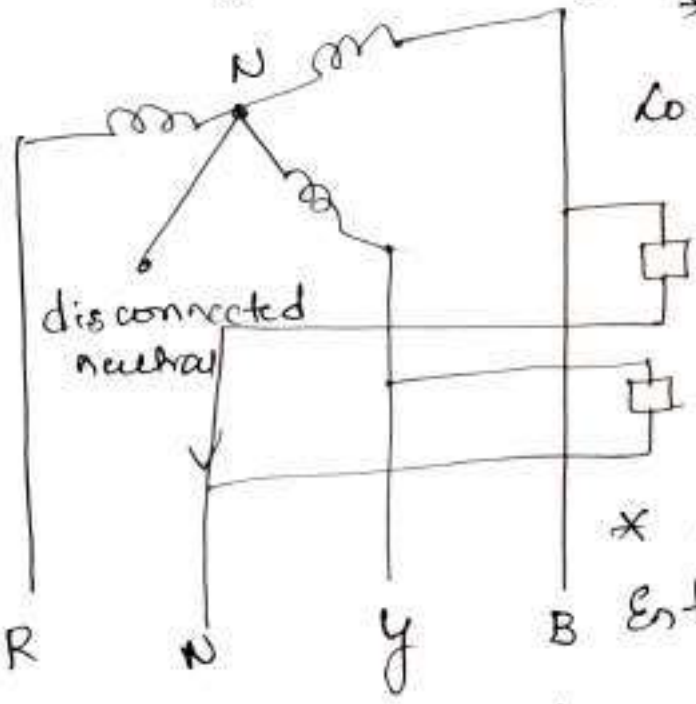
Ring main distributor



Explanation — (2)

(2)/(4)

4 (b) Effect of disconnection of neutral in a 3-phase 4 wire system. (2)



* star point of the load is joined to the star point of distribution transformer
* sum of the current Entering a node is zero
* Their is no neutral current under unbalanced load condition.
* If the neutral is disconnected or opened or lost at any of its one side them, it loses its ref ground. such neutral is called floating neutral (5)

(7)

28/07/2021

INTERNALS-3

Transmission, Distribution & Utilization

RAHUL-S
IV th SEM
EEE
1DB20EE409

30/30 ✓ 30/07/21

1A:- (i) Reliability:- It can be defined as the probability that an item will perform a required function without failure under stated conditions for a stated period of time.

(ii) Power Quality:- It refers to maintenance of voltage waveform undistorted, balanced at rated frequency and at rated voltage.

iii) Reliability Aids:- It is nothing but the required standards to maintain good reliability they are:-

i) System Configuration → They are grid network, spot network, secondary selective primary selective primary loop, radial are the order of merit for the better system reliabilities.

ii) Standardisation - It is necessary to evolve planning design, operation and maintenance, material, constructional and instructional standards codes in respect to specifications.

iii) Good mastering information is also a type of Reliability aids. ✓

1(b)A:- The Requirements of good distribution system are:-

★ The continuity in the power supply must be ensured Thus system should be reliable

★ The specified consumer voltage must be not vary

more than the prescribed limits. As per indian electricity rules, the variation must not be beyond ±5% of the specified voltage.

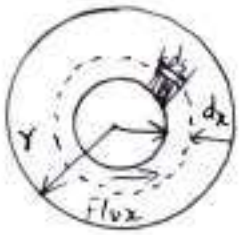
* The efficiency of the lines must be as high as possible
* The System should be safe from consumer point of view. There should not be leakage.
* The layout should not affect the appearance of site or locality.
* The System should be economical.
* The System should not be overloaded.

Though the AC transmission and distribution is used, still for certain applications such as d.c motors electromechanical work, batteries, electric traction etc the DC supply is most. Hence along with AC DC distribution is also equally important. In a DC distribution etc generators are used in the generating Stations or A.C is converted to Dc using the Converters like mercury, are rectifiers, rotary Converters etc at the substations, then the DC supply is distributed to the consumers as per requirement.

Section- B

Inductance due to internal flux linkage:

3) a) Consider a long, straight conductor with radius 'r' meters and carrying a current I amperes as shown in fig. The ~~magnitud~~ Magnetic field will be established due to this current.



(a)

The MMF in ampere turns around any closed path is equal to the currents amperes enclosed by the path. Thus we have

$$mmf = \oint H \cdot ds = I$$

where H is magnetic field intensity in AT/m

Let the magnetic field intensity at a point 'x' meters from the center of the conductors be H_x This is constant at all points as field is symmetrical Thus integration of ds around the closed circular path is $2\pi x$

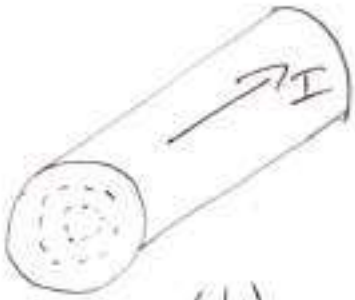
$$\oint ds = 2\pi x$$

As H_x is Constant, $H_x 2\pi x = I_x$

i.e $H_x = \frac{I_x}{2\pi x}$

As the current density is uniform

$\frac{I_x}{\pi x^2} = \frac{I}{\pi r^2}$ i.e $I_x = \frac{\pi r^2}{\pi x^2}$ i.e $I_x = x^2/r^2 = I$



(b)

Substituting this value of I_x in expression for H_x

$$H_x = \frac{x^2}{r^2} \cdot I \cdot \frac{1}{2\pi x} = \frac{x}{2\pi r^2} \cdot I \quad AT/m$$

The flux density at the given point is given by

$$B_x = \mu H_x = \frac{\mu_x}{2\pi r^2} I$$

$$B_x = \frac{\mu x}{2\pi r^2} \cdot I$$

For the element having thickness dx, the flux will be product of B_x and the cross sectional area of the element normal to the flux lines. This area is dx times axial length. So,

$$d\phi = B_x \times 1 \times dx = \frac{\mu x I}{2\pi r^2} \cdot dx$$

This flux links with current I_x. Hence flux linkage per meter length of conductor is given by

$$d\psi = \frac{x^2}{r^2} \cdot d\phi = \frac{\mu x^3 I}{2\pi r^4} \cdot dx$$

To find the internal flux or total flux inside the conductor

$$\psi_{int} = \int_0^r d\phi = \int_0^r \frac{\mu x^3 I}{2\pi r^4} \cdot dx$$

$$\psi_{int} = \frac{\mu I}{3\pi} \quad wb - turn/m$$

But $\mu = \mu_0 \mu_r$ and μ_0 = permeability of free Space

$$\mu_0 = 4\pi \times 10^{-7} \text{ H/m}$$

$$\therefore \Psi_{int} = \frac{\mu_0 \mu_r I}{3\pi} = \frac{4\pi \times 10^{-7} \times \mu_r I}{3\pi}$$

$$\boxed{\Psi_{int} = \frac{1}{2} \times 10^{-7} \mu_r I}$$

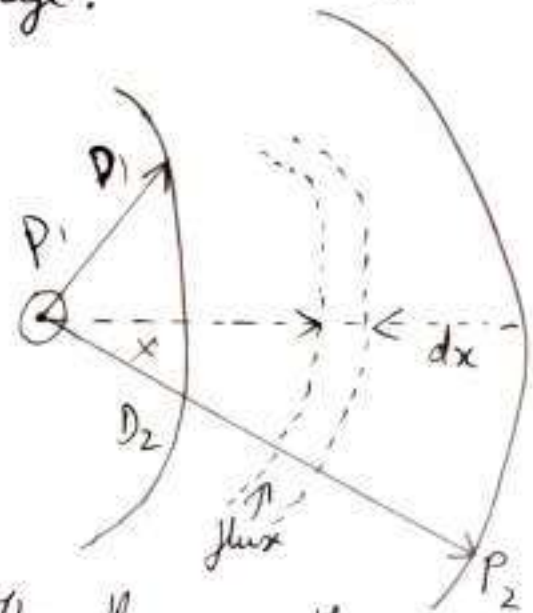
For non magnetic material $\mu_r = 1$ hence

$$\Psi = \frac{1}{2} \times 10^{-7} I$$

$$\boxed{\therefore L_{int} = \frac{\Psi_{int}}{I} = \frac{10^{-7}}{2} \text{ H/m}}$$

3) b) A :- Inductance of conductor due to external flux linkage:

Consider the flux linkage of an isolated conductor due to that portion of external flux which lies b/w two points distant D_1 and D_2 meters from centre of conductor P_1 and P_2 are two such points



The conductor carries current I. The flux path are concentric circles around the conductor b/w P_1 and P_2 Consider a tubular element which is x meters from center of conductor. The field intensity at this

point is H_x. The mmf around the element is,

$$2\pi \times H_x = I$$

The flux density B_x at this point is given by

$$B_x = \mu H_x = \frac{\mu I}{2\pi x} \quad wb/m^2$$

The flux $d\phi$ in the tubular element is given by

$$d\phi = B_x \times d_x \times 1m \quad [\text{assume axial length} - 1m]$$

$$\therefore d\phi = \frac{\mu I}{2\pi x} \cdot dx$$

The flux linkage $d\psi$ per meter are equal to $d\phi$ Since flux external to the conductor. The total flux linkage b/w P_1 and P_2 are obtained by integrating $d\psi$ from D_1 to D_2

$$\psi_{12} = \int_{D_1}^{D_2} \frac{\mu I}{2\pi x} \cdot dx = \frac{\mu I}{2\pi} \int_{D_1}^{D_2} \frac{dx}{x}$$

$$\psi_{12} = \frac{\mu I}{2\pi} \ln\left[\frac{D_2}{D_1}\right]$$

and $\mu = \mu_0 \mu_r$

For relative permeability, $\mu_r = 1$

$$\psi_{12} = \frac{\mu_0 I}{2\pi} \ln\left[\frac{D_2}{D_1}\right]$$

$$\psi_{12} = \frac{4\pi \times 10^{-7}}{2\pi} \ln\left[\frac{D_2}{D_1}\right]$$

$$\psi_{12} = 2 \times 10^{-7} \, I \ln\left[\frac{D_2}{D_1}\right]$$

The inductance due to flux included b/w P_1 & P_2 only is

$$L_{12} = \frac{\psi_{12}}{I} = 2 \times 10^{-7} \ln\left[\frac{D_2}{D_1}\right]$$

If the external flux is considered to be extended from the surface of conductor to infinity then total linkage is given by

$$\psi_{12} = \int_{\gamma}^{\infty} \frac{\mu_0 I}{2\pi x} \cdot dx \quad \text{weber - turns}$$

Overall flux linkages is given by

$$\text{Total flux linkage} = \frac{\mu_0 I}{8\pi} + \int_{\gamma}^{\infty} \frac{\mu_0 I}{2\pi x} \cdot dx$$

$$\therefore \text{Total flux linkage} = \frac{\mu_0 I}{2\pi}\left[\frac{1}{4} + \int_{\gamma}^{\infty} \frac{dx}{x}\right]$$

USN | 1 | D | B | | | | | | |

Wayanamac Education Trust ®

DON BOSCO INSTITUTE OF TECHNOLOGY

Kumbalagodu, Mysore Road, Bengaluru – 560074
www.dbit.co.in Ph:+91-80-28437028/29/30 Fax:+91-80-28437031

Department of Electrical and Electronics Engineering

Internal Assessment Test-II

Course Name: **TRANSMISSION AND DISTRIBUTION** Course Code: **18EE43** Date:29/06/2021

Semester & Section: **IV** Max marks: 30 Time:10:00AM-11:00AM

Note: Answer any Two full questions, choosing only One full question from each Module.
Each full question carry maximum of 15 marks

Q NO.	Module-2 Questions	MARKS	CO	RBTL
1.	a) Derive an expression for sending end voltage and current for long transmission line using Rigorous solution..	8	Co-2	RBTL-1
	b)A three phase, 200 km long transmission line has following parameters ; R = 0.15 Ω / km; X =0.2 Ω / km and B =1.2 e-6mho/km.Determine the (i) sending the voltage, sending end current (ii) regulation (iv) efficiency using rigorous method, if the line supplies a load of 20 MW, *o.8 pf* at 110 kV	7	Co-2	RBTL-3
	OR			
2	(a) Explain the factors effecting corona and phenomenon of corona	8	Co-2	RBTL-2
	(b). A three phase 220 kV line,60 Hz, 150 km long transmission consist of conductors of diameter 2.8 cm, spaced 2 m apart equilaterally . The dielectric strength of air is 30 kV /cm , temperature is 38° C and atmospheric pressure is 76 cm of mercury . The irregularity factor of the conductor surface is 0.89 . determine the corona loss in the line .	7	Co-2	RBTL-3
	Module-4 Questions			
3.	(a)Explain about PVC,Paper,Cross linked polythene insulating materials.	8	Co-3	RBTL-2
	(b) A 220Kv line has a corona loss of 16KW when operating at210KV and 43Kw when operating at 223KV.Determine the critical disruptive voltage also determine the corona loss when it operates at 220Kv.	7	Co-3	RBTL-3
	OR			
4.	a) Derive an expression for dielectric stress in a single core cable.	8	Co-3	RBTL-1
	(b) A 33Kv ,three phase under ground cable 4 km long uses three single core cables. Each of the conductor has a diameter of 2.5 cm and the radial thickness of insulation is 0.5cm.the relative permittivity of the dielectric is 3.Find (i) capacitance of the cable /phase(ii) total charging KVAR (iii) charging current/phase.	7	Co-3	RBTL-3

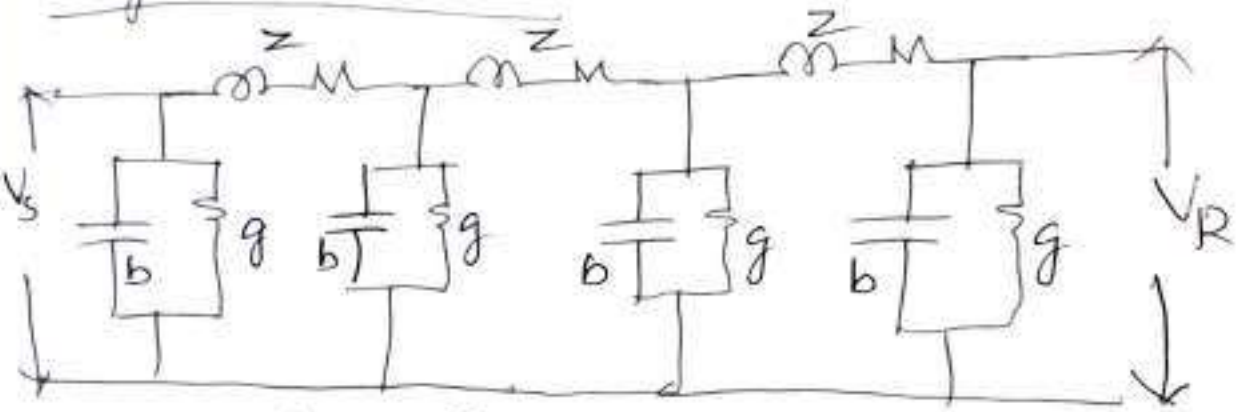
Name & signature of course Instructor
Padmashree V. Kulkarni

scrutinized by
1)
2)
3) HOD

Internal Assessment Test - II

Subject Name: Transmission & Distribution 18EE43

1) Rigorous method



$$\Delta V = I z \Delta x$$

$$\frac{dv}{dx} = Iz \Rightarrow \frac{d^2V}{dx^2} = z\frac{dI}{dt}$$

$$\frac{dI}{dx} = Vy \Rightarrow \frac{d^2V}{dx^2} = zyV$$

second order differential equation whose solution is given by

$$V = Ae^{\sqrt{yz}x} + Be^{-\sqrt{yz}x}$$

$$\frac{dv}{dx} = A\sqrt{yz}\,e^{\sqrt{yz}x} + B\sqrt{yz}\,e^{-\sqrt{yz}x}$$

$$I = A\sqrt{\frac{y}{z}}e^{\sqrt{yz}x} - B\sqrt{\frac{y}{z}}e^{-\sqrt{yz}x}$$

$$V = Ae^{\gamma x} + Be^{-\gamma x}$$

$$I = \frac{A}{Z_C}e^{\gamma x} - \frac{B}{Z_C}e^{-\gamma x}$$

$$I_R = \frac{A}{Z_C} - \frac{B}{Z_C} \quad (x=0)$$

$$V = \frac{V_R + I_R Z_C}{2}e^{\gamma x} + \frac{V_R - I_R Z_C}{2}e^{-\gamma x}$$

W.K.T $\cosh\gamma x + \sinh\gamma x = e^{\gamma x}$

$$V = V_R\cosh\gamma x + I_R Z_C \sinh\gamma x$$

$$I = \frac{V_R}{Z_C}\sinh\gamma x + I_R\cosh\gamma x$$

$A = D = \cosh \gamma l$

$B = Z_c \sinh \gamma l$

$C = \sinh \gamma l$

$\gamma l = \sqrt{yzl} = \sqrt{yz}$

$A = D = \cosh \sqrt{yz}$

$B = \sqrt{\frac{z}{y}} \sinh \sqrt{yz}$

$C = \sqrt{\frac{y}{z}} \sinh \sqrt{yz}$

10 (B)

$\sqrt{yz} = 0.1905 \angle 71.56°$

$(zy)^2 = 1.44 \times 10^{-4} \angle 286.24°$

$Z_c = \sqrt{\frac{z}{y}} = 456.43 \angle -18.435°$

$\frac{1}{Z_c} = 2.19 \times 10^{-3} \angle 18.435°$

$A = D = \cosh \sqrt{yz} = 0.9952 \angle 0.207°$

$I_R = \frac{20 \times 10^6}{\sqrt{3} \times 110 \times 10^3 \times 0.8} = 131.22 A$

$V_S = V_R \cosh \gamma l + I_R Z_c \sinh \gamma l$

$= 69519.147 \angle 1.706 V$

$I_S = \frac{V_R}{Z_c} \sinh \gamma l + I_R \cosh \gamma l = 122.106 \angle -30.93° A$

$\% R = \frac{V_S/A - V_R}{V_R} \times 100 \quad 9.99\%$

$P_S = 3 V_S I_S \cos \phi_S = 21.44 MW$

$\% \eta = \frac{20}{21.445} \times 100 = 93.26\%$

Corona is caused due to Ionization of air. This is because the Electrons acquire Velocity under the influence of potential gradient.

* The applied voltage is low, then their is no apparent change in condition

Factors affecting corona

(a) Atmospheric condition
(b) surface of the conductor
(c) size of the conductor

2(B) $P = 242.2 \left(\frac{f+25}{\delta}\right)\sqrt{\frac{r}{d}} \left(V - V_c\right) \times 10^3 \; \text{kw/km/phase}$

$V_c = g\delta m_0 r \ln\left(\frac{d}{r}\right) \text{kV/phase}$

$= 125.559 \text{ kV/phase}$

$V = \frac{220}{\sqrt{3}} = 127.01 \text{ kV/phase}$

$P = 242.2 \left(88.22\right)\left(0.083\right)\left(125.56\right)^3 \times 10^{-5}$

$P = 0.037 \text{ kw/km/phase}$

∴ power loss/km for 3-phase $= 0.037 \times 3 = 0.111$ kw

power loss in 150km $= 0.111 \times 150 = 16.65$ kw

3(a) * PVC :- It is thermoplastic synthesis compound
Good dielectric strength, chemically inert,
High electrical resistivity

* paper :- It is very cheap insulating material
with high dielectric strength.
+ high thermal conductivity, low cost
high insulation resistance

* cross linked polythene
Extremely high melting point
Light in weight & flexible
High temp with standing capability

3(b)
$$\frac{P_1}{P_2} = \frac{(V_1 - V_c)^2}{(V_2 - V_c)^2}$$

$V_1 = \frac{210}{\sqrt{3}} = 121.24\,kV$ $\quad P_1 = 16$ kW

$V_2 = \frac{223}{\sqrt{3}} = 128.75\,kV$ $\quad P_2 = 43$ kW

$$\frac{16}{43} = \frac{(121.24 - V_c)^2}{(128.75 - V_c)^2}$$

$V_c = 124.085\,kV$

V_c should be less than line voltage

$$\frac{16}{P} = \frac{(121.24 - 109.49)^2}{(127 - 109.49)^2}$$

$$P = \frac{16}{0.4503}$$

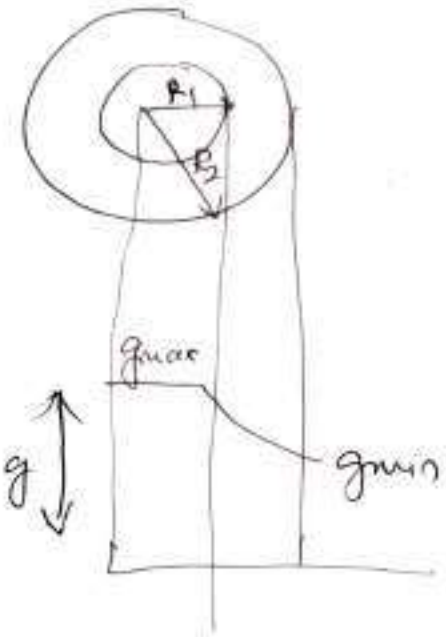
$P = 35.5318$ kw/km/phase at 220kv

Electric stress

$$E_0 = \frac{q}{2\pi\epsilon} \frac{1}{a} \text{ V/m}$$

$$g = \frac{q}{2\pi\epsilon} \frac{1}{a} \text{ V/m}$$

$$V = \int_{R_1}^{R_2} g\,da = \frac{q}{2\pi\epsilon} \ln\left(\frac{R_2}{R_1}\right)$$



$$q = \frac{2\pi\epsilon V}{\ln\left(\frac{R_2}{R_1}\right)} \frac{1}{2\pi\epsilon} \cdot \frac{1}{a}$$

$$g = \frac{V}{a \ln\left(\frac{R_2}{R_1}\right)} \text{ V/m}$$

$$g_{max} = \frac{V}{R_1 \ln\left(\frac{R_2}{R_1}\right)} \text{ V/m}$$

$$g_{min} = \frac{V}{R_2 \ln\left(\frac{R_2}{R_1}\right)} \text{ V/m}$$

$$\frac{dg_{max}}{dR_1} = 0 \qquad \ln\left(\frac{R_2}{R_1}\right) = 1$$

$$\therefore R_2 = 2.718 R_1$$

$$R_1 = \frac{V}{g_{max}}$$

4(b) $V = \frac{33000}{\sqrt{3}} \times \sqrt{2} = 26944.38 \text{ V}$

$V_p = 19052.56$

$D_1 + d + 2 \times$ radial thickness of insulating

$= 2.54 + 2 \times 0.5 = 3.5\,cm$

$R_1 = \frac{D_1}{2} = 0.0175\,cm$

$g_{max} = \frac{V}{r \log \frac{R_1}{r}} = 64.07\ kV/cm$

$C = \frac{0.024 \epsilon_r}{\log_{10}\left(\frac{R_1}{r}\right)} = 1.97\ \mu F$

$I_c = 2\pi f C V_p = 11.791\ A$

$KVAR = \sqrt{3} V_c I_c \times 10^{-3} = 673.94\ KVAR$

29/06/2021

IA-2

RAHUL-S
1DB20EE409

TRANSMISSION DISTRIBUTION & UTILIZATION

Section-A

29/30

01/07/21

2 a) ~~Derive an Expression for Sending end vtg and current for long transmission line using Rigrous Solution~~

A:-

Factors affecting corona are:-

★ Due to corona there is corona loss which increases in rainy conditions. This effects the efficiency of transmission line.

★ Audible noise in the human hearing range is produced during corona, During fair whether conditions this noise is negligible but in rainy conditions. it can reach upto 60 dB close to the transmission line and could become very annoying

★ The current produced by the pulsative corona produces electromagnetic fields which have undesirable effects on animals and human beings.

★ The corona produces radio and television interference to nearby locations.

★ The corona effect attenuates the high voltage surges along the transmission line and reduces the effects produced by the surges.

★ The ozone gas discharge at the time of corona chemically reacts with conductor any may cause corrosion.

Phenomenon of Corona :

Corona is mainly caused to ionization of air.

Ionization is the process of which by an atom or a molecule acquires a negative or +ve charge by gaining or losing electron to form ions.

∴ Under Normal conditions the air around the conductors contain ionized particles and neutral molecules.

★ when an alternating potential difference is applied across two conductors whose spacing is large as compared to then diameter the air surrounding the conductors is subjected to di-electric stress.

★ The applied voltage is low, there is no apparent change in the condition of the atmosphere air surrounding the wires.

★ However, when the potential difference is increased beyond some thresold value known as critical disruptive voltage. the field strength increases enough to cause the air surrounding to become conducting.

★ At critical disruptive voltage the velocity acquired by the free electrons is sufficient to strike a neutral molecule with enough force.

Thus the process of ionization is cummulative. This results in electric discharge around the conductors due to flow of these ions, giving rise to a faint luminescent glow along with hissing sound accompained by the characteristic odour. This phenomenon is called corona.

2) b) Given $f = 60Hz$, so to calculate power

$$P = 242.2 \left[\frac{f+25}{\delta}\right]\sqrt{\frac{r}{d}}(V - V_c) \times 10^{-3} \text{ Kw/km/phase}$$

$$\delta = \frac{3.92b}{273+t} = \frac{3.92 \times 76}{273+38} = 0.958$$

$$g = \frac{30}{\sqrt{2}} = 21.2 \text{ Kv/m (rms)}$$

$m_0 = 0.89$, $r = \frac{2.8}{2} = 1.4 \text{ cm}$

$d = 2m = 200 \text{cm}$

$$V_c = g\,\delta\, m_0\, r \ln\left[\frac{d}{r}\right] \text{ Kv/phase (rms)}$$

$$V_c = 242.2 \times 0.958 \times 0.89 \times 1.4 \ln\left[\frac{200}{1.4}\right]$$

$$V_c = 125.56 \text{ Kv/phase}$$

Supply voltage $V = \frac{200}{\sqrt{3}} = 107 \text{ Kv/phase}$

$$P = 242.2 \left[\frac{60+25}{0.958} \right] \sqrt{\frac{1.4}{200}} \; (125.56)^2 \times 10^{-5}$$

$$= 242.2 \left[\frac{60+25}{0.958} \right] \times 0.01319$$

$$P = 0.037 \text{ kw/km/phase}$$

Power loss per km for 3ϕ $= 0.037 \times 3 = 0.111$ kw/km

Power loss is 150 km $= 0.111 \times 150 = 16.65$ kw

Section - B

3) a) i) **PVC** ; It is thermo plastic synthetic compound It is available in the power form and it is obtained from polymerization of acetylene. This powder is chemically inert non-flammable, odourless, tasteless and insoluble. It is combined with plastic compound and a gel is used over the conductor to obtain the insulation

characteristics {PVC - poly vinyl chloride i.e Ex: PVC pipe}

* good electric strength of 17 kv/mm
* chemically inert.
* Resistant to corrosion
* Non-hygroscopic
* High electric resistivity.

ii) Paper: The paper is very cheap insulating material it's di-electric strength is also high but a small amount of moisture reduces it's insulation resistance to a very low value. Thus it is impregnated in an insulating oil.

Characteristics:-
- ★ High dielectric strength
- ★ Higher thermal conductivity
- ★ Low capacitance
- ★ High durability.
- ★ low cost

iii) XLPE i.e [Cross linked poly ethylene]
The cables using across XLPE as insulating material are called XLPE cables. The low density polyethelene is treated specially due to which there occurs cross linking of carbon atoms in it.

This results into a new material which has following properties they are:
- ★ High di-electric strength
- ★ Extremely high melting point
- ★ Light in weight & flexible
- ★ Mechanically strong
- ★ Low moisture absorption

3) b) $d = 2.5\,cm$, $t = 0.5\,cm$, $\varepsilon_r = 3$ i.e

$$\varepsilon_J = d + 2t$$
$$= 3.5\,cm$$

i) Capacitance of cable /ph/m $= \dfrac{2\pi\varepsilon_0\varepsilon_r}{\ln\left[\frac{D}{d}\right]}$ F/m

$$= \frac{2\pi \times 8.854 \times 10^{-12} \times 3}{\ln\left[\frac{3.5}{2.5}\right]}$$

$$= \frac{1.66893 \times 10^{-10}}{0.336472}$$

$$\hookrightarrow = 4.96 \times 10^{-10}\ \text{Farad/metre}$$

Total $\Rightarrow C = 4.96 \times 10^{-6} \times \text{Length}$

$$= 4.96 \times 10^{-10} \times 4000$$

$$C = 1.984\ \mu F/ph$$

ii) $V_{ph} = \dfrac{V_L}{\sqrt{3}} = \dfrac{33 \times 10^3}{\sqrt{3}} = 19.05 \times 10^3\ V$

Charging current/phase $= I_c = \dfrac{V_{ph}}{X_c}$

$$X_c = \frac{1}{2\pi f C}$$

$$I_C = \frac{19.05 \times 10^3}{\left[\frac{1}{2\pi \times 50 \times 1.984 \times 10^{-6}}\right]}$$

$$= \frac{19.05 \times 10^3}{1604.384}$$

$$I_C = 11.873 A \angle$$

iii) Total charging KVAR $= 3 V_{ph} I_C$

$= 3 \times 19.05 \times 10^3 \times 11.8737$

∴ Total charging KVAR = 678.58 KVAR

3) b) It can be seen that the power loss is proportional to $(V-V_c)^2$ all other parameters being same

$$\therefore \frac{P_1}{P_2} = \frac{(V_1 - V_{c1})^2}{(V_1 - V_c)^2} \rightarrow (1)$$

Given,

$V_1 = 210/\sqrt{3} = 121.24\,kV$, $P_1 = 16\,kw$

$V_2 = 223/\sqrt{3} = 128.75\,kV$, $P_2 = 43\,kw$

$$(1) \rightarrow \frac{16}{43} = \frac{(121.24 - V_c)^2}{(128.758 - V_c)^2}$$

$$16(128.75 - V_c)^2 = 43(121.24 - V_c)^2$$

$$16[16576.5625 + V_c^2 - 2V_c(128.75)] = 43[14699.1376 + V_c^2 - 2V_c(121.24)]$$

$$632062.21 + 43V_c^2 - 10426.64V_c - 265225 - 16V_c^2 + 4120V_c = 0$$

$$27V_c^2 - 6306.64V_c + 366837.91 = 0$$

On solving,

$V_{c1} = 124.085\,kV$, $V_c = 109.493\,kV$

V_c should be lesser than line v/g.

V_1 should be having lesser value of $121.24\,kw$

So V_c will be the value of $109.49V$.

To determine the power loss at 220kV, we use the V_c computed above.

$$V = \frac{220}{\sqrt{3}} = 127 kV, \quad \text{Again using (1)}$$

$$\frac{16}{P} = \frac{(121.24 - 109.49)^2}{(127 - 109.49)^2}$$

$$P = \frac{16}{0.4503}$$

So, $P = 35.531$ kw/km/phase at 220 kV.

end

USN | 1 | D | B | | | | | | | |

Wayanamac Education Trust ®

DON BOSCO INSTITUTE OF TECHNOLOGY

Kumbalagodu, Mysore Road, Bengaluru – 560074
www.dbit.co.in Ph:+91-80-28437028/29/30 Fax:+91-80-28437031

Department of Electrical and ElectronicsEngineering

Internal Assessment Test-I

Course Name: **TRANSMISSION AND DISTRIBUTION** Course Code: **18EE43** Date:

Semester & Section: **IV** Max marks: 30 Time:

Note: Answer any Two full questions, choosing only One full question from each Module.
Each full question carry maximum of 15 marks

Q NO	Module-1 Questions	MARKS	CO	RBTL
1	a) A transmission line conductor at a river crossing is supported from two towers at height of 50 and 80 meter above water level. The horizontal distance between the tower is 300 meters.If the tension in the conductor is 2000 kg. Find the clearance between the conductor and water at a point midway between the towers. Weight of conductor per meter = 0.844 kg.Assume that the conductor take the shape of parabolic curve.	10	Co-1	RBTL-3
2	b) Discuss the advantage of high voltage transmission.	5	Co-1	RBTL-6
	OR			
	a) An overhead transmission line with standard copper conductors on two poles 300 meter apart is, having a difference in level of 10 meters . The diameter is 2.0 cms, weights 2.3 kg / mt . Calculate the under lower support if factor of safety is 3. The maximum tensile strength of copper is 400 kg	10	Co-1	RBTL-3
	b) Define Factor of safety. Explain the effect of ICE coating on Transmission line	5	Co-1	RBTL-6,2
	Module-2 Questions			
3.	a) short line has an independence of (0.2 + j 0.45) Ω. If the sending end voltage is 3.3 kV and the load is 750 kV at 0.8pf lag determine the (i) receiving end voltage (ii) line current and efficiency.	8	Co-3	RBTL-3
	b) with neat phasor diagram explain the performance analysis of short transmission line.	7	Co-3	RBTL-2
4.	**OR**			
	a)A 110KV ,50HZ,3 phase transmission line delivers a load of 40 MW at 0.85 pf lagging at the receiving end. The generalized constants of the transmission line are A=D=0.95<1.4° B=96<78°,C=0.0015<90° Find the regulation of the line and charging current use Nominal T Method	10	Co-3	RBTL-3
	b)3 phase short transmission line delivers 3MW at a pf of 0.8 lagging to a load.If the sending ends voltage is 33KV.Determine (i) receiving end voltage (ii) Line current (iii) transmission efficiency (iv) Regulation .the resistance and reactance of each conductor are 5Ω and 8Ω respecively	5	Co-3	RBTL-3

Name & Signature of Course Instructor

Padmashree V Kulkarni

Scrutinized by (Name & Signature)

1)

2)

3) HOD-

scheme & solution — Internal Assessment - 1

$L = 300m$ $h_A = 50m$ $h = h_B - h_A = 80 - 50 = 30m$

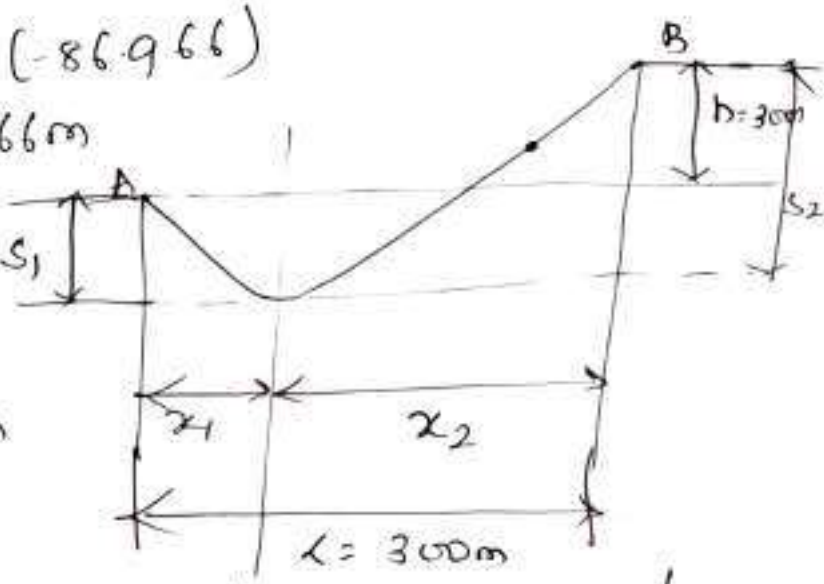
$T = 200kg$ $h_B = 80m$

$$x_1 = \frac{L}{2} - \frac{Th}{wL} = -86.966m$$

$$x_2 = L - x_1 = 300 - (-86.966) = 386.966m$$

$$S_1 = \frac{wx_1^2}{2T} = 1.595sm$$

$$S_2 = \frac{wx_2^2}{2T} = 31.59m$$



It can be seen that x_1 is negative, so trajectory will be shifted

now co-ordinates of p are (x_p, y_p)

$$x_p = x_1 + \frac{L}{2} = 87 + \frac{300}{2} = 237m \quad \text{—(5)}$$

$$y_p = \frac{w(x_p)^2}{2T} = \frac{(0.849)(237)^2}{2 \times 200} = 11.85m$$

clearance of point O from water level is

= height of $A_1 - S_1$ = height of $B - S_2$

= $50 - 1.59 = \underline{48.41m}$

clearance of point p, ie, point midway between the towers & water level = $48.41 + y_p = \underline{60.26m}$

↳ (5)

10

(b) Advantages of high voltage transmission

* Reduction in Volume of conductor material
* Decrease in voltage drop
* Improvement in voltage regulation
* Increase in transmission Efficiency
* No of circuits & Land requirements reduces
* Total line cost /Rs/km decreases with the increase in line voltage
* Operation of HVAC voltage is simple.
* Equipments used in HVAC system are simple
* No skin Effect
* Long distance water crossing.

(5)

$$\eta = \frac{P_r}{P_r + \text{losses}}$$

$$= 97.75\%$$

$$\%R = \frac{V_S - V_R}{V_R} \times 100$$

$$= 3.229.$$

$$V_S = V_R + I_R Z$$

$$V_S = (V_R + I_R \cos\phi_R + I_R X \sin\phi_R) + j(I_R X \cos\phi_R - I_R R \sin\phi_R)$$

$$V_S = V_R + I_R R \cos\phi_R + I_R \sin\phi_R$$

4(a) $P_r = 40\text{mw}$, $V_R = 110\text{kv}$

$$V_R = \frac{110}{\sqrt{3}} = 63.568\text{kv}$$

$$I_R = \frac{P_R}{\sqrt{3} V_R \cos\phi_R} = 454.54\text{A}$$

$$\overline{I_R} = 363.48 - 272.9j$$

$$V_S = A\overline{V_R} + BI_R$$

$$V_S = 97.952 \angle 1^\circ 931\text{V}$$

$$I_S = CV_R + DI_R = 384.39 \angle -23.86^\circ$$

charging current $= I_C = I_S - I_R$

$$= 428.556 \angle 88.404^\circ$$

% Regulation = 62.3%

4(b) $P_r = 3\text{mw} = 3\times10^6\text{w}$

$\cos\phi_R = 0.8$ $V_S = 33\text{kv}$ $R = 5\Omega$ $X = 8\Omega$

$$V_S = V_R + I_R \cos\phi_R R + I_R X \sin\phi_R$$

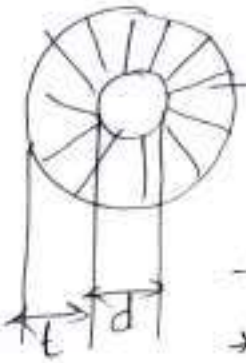
$$V_r^2 - 19.052 + 111m = 0 = 18455.9$$

$$I_r = \frac{1.25\times10^6}{18.45} = 67.72\text{A} = 18.455\text{kv}$$

(2)

Factor of safety — Defn

* consider transmission line is coated with Ice



* Thickness & size of the conductor increases
* This thickness depends on the weather condition
* This inturn increases in weight of the conductor
* weight of Ice acts vertically downwards in the same direction as that of the conductor

↳ (3)

3(a) $V_S = \frac{33\times10^3}{\sqrt{3}} = 19052.56\ V$

$\cos\phi_R = 0.8 \quad \sin\phi_R = 0.6 \quad Z = 0.2 + j0.4\ \Omega$

$I_R = \frac{3125\times10^3}{V_R}$

$V_S = V_R + I_R R\cos\phi_R + I_R X\sin\phi_R$

$19052.56 = V_R + \frac{134.375\times10^3}{V_R}$

$V_R = 18319\ V$

Receiving end voltage $V_{RL} = \sqrt{3} \times 1831.9$

$= 3.17 kV$

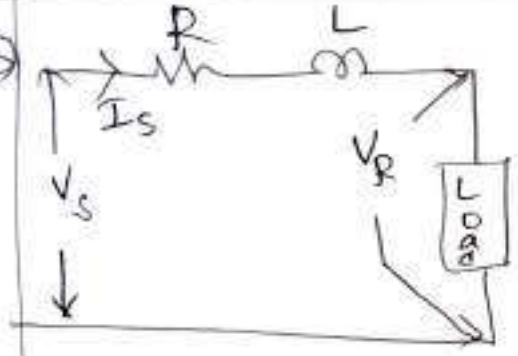
Line current $= \frac{312.5 \times 10^3}{1831.9} = 170.59 A$

Losses $= 3I^2R = 17460.57 \omega$

$\% \eta = \frac{750 \times 10^3}{750 \times 10^3 + 17460.57} \times 100$

$\% \eta = 97.72 \%$

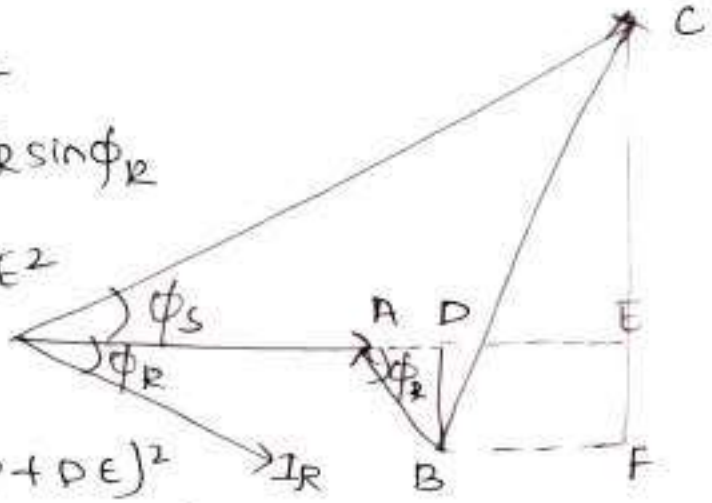
3(b)



from the figure

$DE = Bf = I_R \sin\phi_R$

$V_S^2 = OC^2 = OF^2 + CF^2$



$V_S^2 = (OD + AD + DE)^2 + [CF - EF]^2$

$(V_S)^2 = (V_R + I_R R\cos\phi_R + I_R X \sin\phi_R)^2 + (I_R \cos\phi_R + I_R R \sin\phi_R)^2$

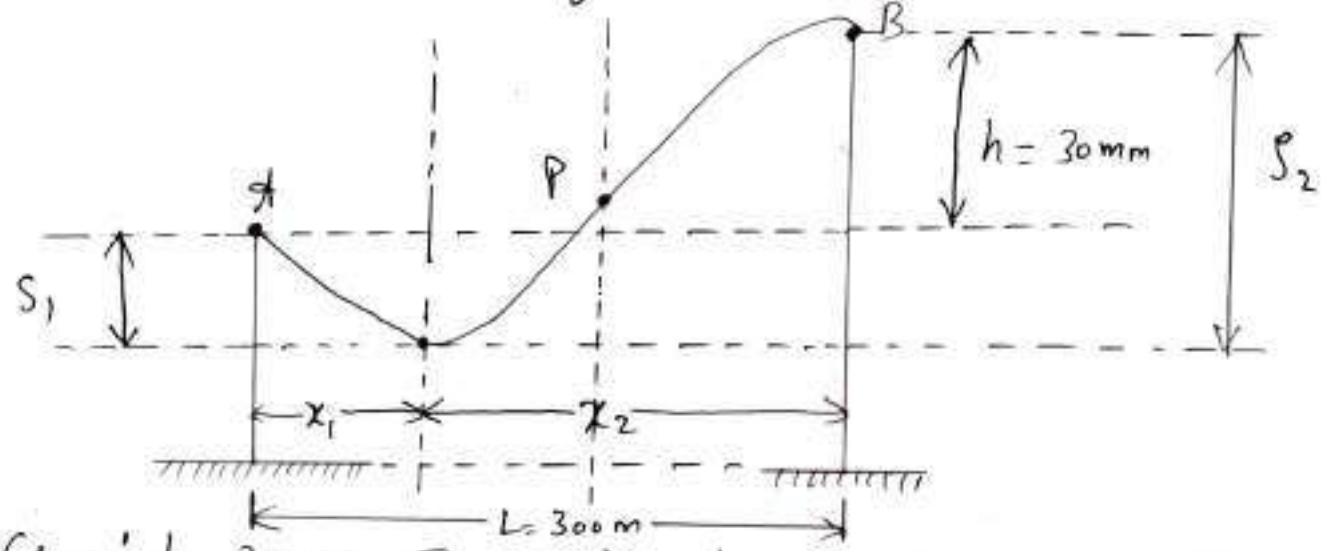
28/05/2021

18EE43

INTERNALS - 1

RAHUL.S
1DB20EE409

1) a) A transmission line conductor at a river crossing is supported from two towers at a height of 50 and 80 meter above water level. The horizontal distance between the tower is 300 meters. If the tension in the conductor is 2000 kg Find the clearance between the conductor and water at a point midway between the towers. Weight of conductor per meter = 0.844kg. Assume that the conductor take the Shape of parabolic curve



Given :- L = 300 m, T = 2000 kg, $h_A = 50$, $h_B = 80$

$h = h_B - h_A$, $w = 0.844$ kg

$= 80 - 50$

$= 30$

26/30

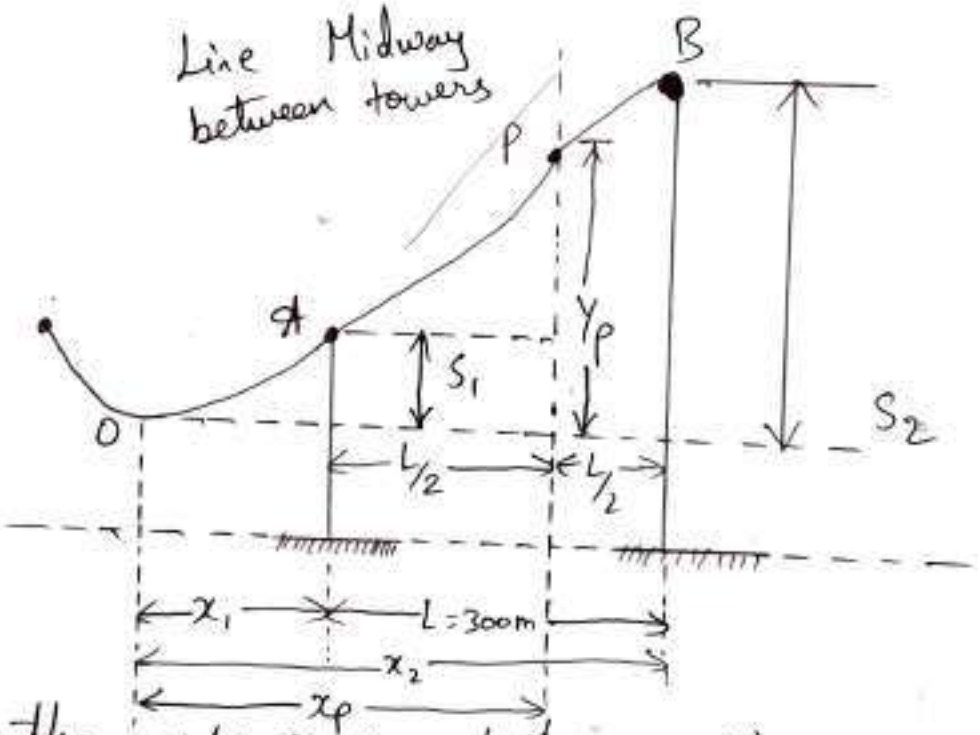
29/05/21

$$x_1 = \frac{L}{2} - \frac{Th}{wL} = \frac{300}{2} - \frac{2000 \times 30}{0.844 \times 300} = -86.966\,m$$

$$x_2 = L - x_1 = 300 - (-86.966) = 386.966\,m$$

$$S_1 = \frac{w x_1^2}{2T} = \frac{0.844 \times (-86.96)^2}{2 \times 2000} = 31.597\,m$$

It can be seen that x_1 is -ve which individual indicates that the lowest point of the trajectory is point 'O' occurs to the left of support 'A'. So support 'A' is to the right of point 'O'. So between supports A and B is the lowest point of trajectory doesnot exist. The case is shown below.



Now the origin is O and the point 'P' is located midway between the towers on the conductor

It can be cross checked by $S_2 - S_1 = h$ Now co-ordinates of 'P' are (x_P, Y_P), it can be observed that

$x_P = x_1 + \frac{L}{2} = 84 + \frac{300}{2} = 237$ m from origin O, it is horizontal distance from 'P' and the vertical distance is

$$Y_P = \frac{W(x_P)^2}{2T} = \frac{(0.844)(2.37)^2}{2 \times 200} = 11.85 \text{ m}$$

$\overrightarrow{V_s} = 0.95\angle 1.4^\circ \times 63.508\times10^3\angle 0^\circ + 96\angle 78^\circ \times 454.54\angle -36.9^\circ$

$= 60.332\times10^3\angle 1.4 + 43.635K\angle 41.4$

$= 60.313K + 1.474jK + 32.881K + 28.684Kj$

$\overrightarrow{V_s} = 97.952\times10^3\angle 17.931\ V$

Sending End Current $\overrightarrow{I_s} = \bar{C}\overrightarrow{V_R} + \bar{D}\overrightarrow{I_R}$

$= 0.0015\angle 90^\circ \times 63.508\times10^3\angle 0^\circ + 0.95\angle 1.4^\circ \times 454.54\angle -36.9$

$= 95.262\angle 90^\circ + 431.813\angle -35.5$

$\overrightarrow{I_s} = 351.545 - 155.4j$

$\overrightarrow{I_s} = 384.39\angle -23.86$ Amps

charging current $\overrightarrow{I_c} = \overrightarrow{I_s} - \overrightarrow{I_R}$

$= [351.545 - 155.49j] - [363.48 - 272.9j]$

$\overrightarrow{I_c} = -11.935 - 428.39j$

$I_c = 428.556\angle 88.404$ amps

06

$\%\ Reg = \dfrac{\left[\dfrac{V_s}{A}\right] - V_R}{V_R} \times 100$

$= \dfrac{\left[\dfrac{97.952\times10^3}{0.95}\right] - 63.508\times10^3}{63.508\times10^3} \times 100$

$\therefore\ \%\ Reg = 62.35\%$

4) b) 3ϕ short transmission line delivers 3MW at a P.f of 0.8 lag to a load. If the sending end voltage is 33kv. Determine i) Recieving end voltage (ii) line current (iii) transmission efficiency (iv) Regulation. the resistance and reactance of each conductor are 5Ω and 8Ω respectively

↳ $P_R = 3MW = 3\times10^6\ W$

$\cos\phi_R = 0.8$, $V_S = 33kv$, $R = 5\Omega$, $X = 8\Omega$

$$V_S = \frac{33k}{\sqrt{3}} = 19.052\times10^3\ V$$

(i) $V_S = V_R + I_R\cos\phi_R R + I_R \times \sin\phi_R \rightarrow (1)$

w.k.T $P_R = 3[V_R I_R \cos\phi_R]$

$$I_R = \frac{P_R}{3V_R\cos\phi_R} = \frac{3\times10^6}{3\times V_R \times 0.8}$$

$$I_R = \frac{1.25\times10^6}{V_R} \rightarrow (2)$$

Substitute (2) in (1)

$$V_S = V_R + \left[\frac{1.25\times10^6}{V_R}\right][\cos\phi_R R + \sin\phi_R X]$$

$$19.052\times10^3 = V_R + \left[\frac{1.25\times10^6}{V_R}\right][(0.8\times5)+(0.6\times8)]$$

$$19.052\times10^3 = V_R + 11\times10^6/V_R$$

The clearance of point 'P' is the point midway b/w the towers and water level = $48.41 + Y_p$

$= 48.41 + 11.85$

$= 60.26m$

1) b) Discuss the advantages of High voltage transmission

↳ ☆ Reduction in line current
☆ Reduction in power loss
☆ Reduced conductor volume
☆ Greater efficiency
☆ Improved voltage regulation
☆ less installation cost/km
☆ land cost: land required to lay transmission
☆ losses decreases with increase in voltage.
☆ Less corona effect and radio interference
☆ Increased power handling capacity
☆ The Equipments used in High voltage transmission are reliable without the need of high technology
☆ No Skin effect and Ferranti effect.

4) a) 110kV, 50 Hz, 3 phase transmission line delivers a load of 40 MW at 0.85 p.f lagging at the recieving end. The generalized constants of the transmission line are $A = D = 0.95 \angle 1.4$ $B = 96 \angle 78^\circ$, $C = 0.0015 \angle 90^\circ$. Find the regulation of the line and charging current use nominal T method

↳ Given $P_R = 40 \times 10^6$ W, $V_R = 110$ kV

Recieving end v/g/phase $V_R = \frac{110\text{K}}{\sqrt{3}} = 63.508 \times 10^3$ V

Recieving end current

$$I_R = \frac{P_R}{\sqrt{3} \times V_R \times \cos\phi_R}$$

$$= \frac{40 \times 10^6}{\sqrt{3} \times 63.508 \times 10^3 \times 0.8}$$

$\therefore I_R = 454.54$ amps

$\cos\phi_R = 0.8$, $\sin\phi_R = 0.6$

Taking recieving end voltage as a reference phasor

$$\vec{V_R} = V_R + j0 = 63.508 \times 10^3 \text{ V}$$

$$\vec{I_R} = I_R \angle -\phi_R = 454.54 \angle -36.9 = 363.48 - 272.9j$$

Sending end voltage per phase is

$$V_S = \vec{A} V_R + \vec{B} I_R$$

$$19.052 \times 10^3 - V_r = \frac{11 \times 10^6}{V_r}$$

$$V_r [19.052 \times 10^3 - V_r] = 11 \times 10^6$$

~~$19.052 = V_r + 11 \times 10^6$~~
~~V_r~~

$$19.052 \times 10^3 V_r - V_r^2 = 11 \times 10^6$$

$$V_r^2 - 19.052 \times 10^3 + 11 \times 10^6 = 0$$

Solving $V_r = 18455.9 = 18.455 \times 10^3$ V (1φ)

$$V_s = 18.456 \times 10^3 \times \sqrt{3} = 31.96 \times 10^3 \text{ V}$$

$$I_s = \frac{1.25 \times 10^6}{18.45 \times 10^3} = 67.72 \text{ A}$$

iii) $\eta = \frac{P_r}{P_r + \text{losses}} = \frac{P_r}{P_r + [3 I_R^2 R]} \times 100$

(Transmission Efficiency) $= \frac{3 \times 10^6}{3 \times 10^6 + 3(67.72)^2 .5)} \times 100$

$\eta = 97.75\%$

iv) Regulation $\%R = \frac{V_s - V_R}{V_R} \times 100$

$$= \frac{19.052 \times 10^3 - 18.456 \times 10^3}{18.456 \times 10^3} \times 100$$

$\therefore \%\text{Reg} = 3.229\%$

26/30

29/05/21

Registration No
College Roll No

Total no of printed pages: 02 MBA – 18MBAFM303

DON BOSCO INSTITUTE OF TECHNOLOGY
DEPARTMENT OF MANAGEMENT STUDIES AND RESEARCH
SEMESTER: 3rd
1st MID SEMESTER EXAMINATION – 2020 – 2021
DIRECT TAXATION

Date: 19/10/2020
Duration: 1 ½ Hr

Time: 11:30AM to 01:00PM
Full Mark: 50

Note: i. Answer any two from Part - A.
ii. Part – B is Compulsory.

Part – A

1	a	Define assesse.	[3 M] [CO-1] RBTL-1
	b	Briefly explain the rules regarding basic conditions and additional conditions for calculating residential status.	[7 M] [CO-1] RBTL-2
	c	X, a foreign citizen (not being a person of Indian origin),leaves India for the first time after 2013 on April ,2017. During the calendar year 2018, he comes to India on November 20 for a period of 16 days. During the calendar year 2019, he does not visit India at all. He finally comes back on February 1,2020 at 10.30 p.m. determine his residential status for the assessment year 2020-21	[10 M] [CO-1] RBTL-2
2	a	What do you mean by previous year.	[3 M] [CO-1] RBTL-1
	b	Briefly explain the revenue and capital receipts.	[7 M] [CO-2] RBTL-2
	c	X, a foreign citizen. Since 1981, he comes to India every year in the month of November for 104 days. Find out the residential status of X for the assessment year 2020-21if a)X is not a person of Indian origin. b)X was born in Lahore on November 6,1946 c)grandmother of X was born in Delhi in 1980 d)X was born in Punjab in 1945.	[10 M] [CO-1] RBTL-3
3	a	What do you mean by assessment year.	[3 M] [CO-2] RBTL-1
	b	Enumerate on tax evasion, tax planning and tax avoidance.	[7 M] [CO-2] RBTL-2
	c	The government of Japan appoints X, an Indian citizen, as senior	[10 M] [CO-2] RBTL-5

19-10-2020

		taxation officer. He leaves India , for the first time on September 3, 2018 for joining his duties in japan. During the previous year 2020-21, he comes to India on November 2,2020 for 200 days. Determine the residential status of X for A.Y. 2020-21 and 2021-22.	
		Part – B	
		Compulsory	
1	a	X, furnishes the following information. 1)interest on germen development bonds(2/5th received in india) – 60,000 2)income from agriculture in Bangladesh received there but later on Rs 50,000 is remitted to India (agricultural activity is controlled from Bangladesh).- 1,81,000 3)income from property in Canada received outside (Rs 76,000 is used in Canada for meeting educational expenses of X's daughter in USA and Rs 10,000 is later on remitted to india).- 86,000 4)income earned from Kampala (Uganda) which is controlled from Delhi (Rs 15,000 received in india)- 65,000 5)dividend paid by foreign company but received in india-46,500 6)profits from business in madras and managed from outside India- 27,000 7) past untaxed profit of 2008-09 brought to India during the previous year -10,43,000 8)Profit from a former employer in India received in Rangoon-36,000 9)Gifts in foreign currency from a friend received in India -80,000 10)profits on sale of building in India but received in srilanka- 14,80,000 Find out the gross total income if Mr X is a resident, resident but not ordinary and non resident in India.	**[10 M] [CO-2] RBTL-3**

Wayanamac Education Trust (R)
DON BOSCO INSTITUTE OF TECHNOLOGY
Kumbalagodu, Mysore Road, Bangalore 560 074
Ph: +91-80- 28437028 / 29 / 30 Fax: +91-80- 28437031
www.donboscobangalore.education

SCHEMA & SOLUTIONS FOR INTERNAL ASSESSMENT – I / II / III

ACADEMIC YEAR 2017-18

Sub Title: DIRECT TAX

Sub Code: 18MBAFM303

Question No.	Solution	Marks allocated
1 a)	Assessee means any person who is liable to pay tax on his previous year's income.	3M
1 b)	Basic Condition 1. He must be in India during the previous year for more than 182 Days. Basic Condition 2. He must be in India for atleast 60 days during the previous year and more than 365 days during 4 years preceding to previous year. Additional Condition 1. He must be resident for atleast 2 out of 10 years preceding to previous year	7M

11/11/20

12/11/2020

13/11/2020

Question No.	Solution	Marks allocated
	Additional condition 2 He must be in India for more than 730 days during 7 years preceding to previous year.	
1(g)	A.Y 2020-21 P.Y 2019-20. February 1 2020 → 10.30 p.m ∴ February 2 - 29 → 28 March 31 59 Since He was in India only for 59 Days during the previous year, therefore he does not satisfy one of the Basic Condition. He becomes Non-resident of India.	10M

Question No.	Solution	Marks allocated
2 a)	Previous year is a year in which assessee earns the income on which Assessee pays the tax According to Assessment year the rates.	3M
2 b)	**Revenue Receipt** / **Capital Receipt.** 1) It has short-term effect. / It has long-term effect. 2) It occurs repeatedly. / It does not occur again & again. 3) It is shown in P&L A/c credit side / It's shown in the B/S liability side 4) It does not produce capital receipt. / When capital receipt Invested It produces Revenue receipts.	7M

Question No.	Solution	Marks allocated
5)	Revenue It does not ~~receive~~ Increase / Decrease the value of asset.	Capital. It increases the value of liability.
2 c)	He was in India for 104 days during the previous year He does not satisfy 1st basic condition.	
ii)	P.Y 19-20 —) 104 18-19 — 104 17-18 — 104 16-17 — 104 15-16 — 104 416 He satisfies the 2nd Basic condition	10M

Question No.	Solution	Marks allocated

Additional Condition.

2018-19 —) 104 Days R
2017-18 —) 104 R
2016-17 —) 104 R
2015-16 —) 104
2014-15 —) 104
2013-14 —) 104
2012-13 —) 104
2011-12 —) 104

He satisfies 1st Additional condition.

He was in India for only 728 Days during the 7 years preceding to previous year kulle bore He does not satisfy 2nd ~~Bus~~ Additional Condition He belongs Resident but not Ordinarily.

Question No.	Solution	Marks allocated
	For sub-question b, c and d He becomes a person of India origin therefore He needs to satisfy 1st Basic condition (>182 days in previous year) where as He was in India for only 104 days. Therefore he becomes Non resident of India	10
3 a)	Assessment year It is a year in which the income of the previous year is to be assessed. The current assessment year is 2020-21.	3M

Question No.	Solution	Marks allocated
3 b)	Tax planning. -) objective is to minimize the tax planning. -) It is related to future. -) It is optional. -) It also includes tax management Tax avoidance It's an Exercise undertaken by the tax payers to use the loopholes of over tax laws for reducing his or her tax liability. Though the entire Exercise is always within the frame work of our law & is legal but it kills the very basic purpose of spirit behind making any law.	7M

Question No.	Solution	Marks allocated

Tax Evasion

It happens, when any person tries to reduce his taxes either by increasing the amount of available deductions, benefits or Exemptions or decreasing their income by under reporting It is completely illegal & anti-national act. 10

3 Q. X is an Indian Citizen. During the P.Y 19-20. He leaves India for the purpose of Employment. He can become resident only if he is in India for atleast 182 Days during the previous year

By the given problem He was in India for only 156 days

Sub Title: _____ Sub Code: _____

Question No.	Solution				Marks allocated
	(April 1 2019 to September 3 2019) He is liable for Non – resident.				
	Case – study.	RSO	RBNO	N.R	
(1) a)	Indian income	24,000	24,000	24,000	10
b)	Foreign income	36,000	–	–	
2	Foreign income	1,81,000	–	–	
(3)	Foreign income	86,000	–	–	
(4) a)	Indian income	15,000	15,000	15,000	
b)	Foreign income	50,000	50,000	–	
5)	Received in India	46500	46,500	46,500	
6)	Indian income	27000	27000	27,000	
7)	past unabsorbed profit	–	–	–	
8)	In India	36,000	36000	36,000	
9)	Indian income	80,000	80,000	80,000	
10)	Indian income	1480,000	1480,000	1480,000	
	Gross total income	20,61,500	17 58 500	1708500	

Registration No
College Roll No

Total no of printed pages: 03 MBA – 18MBAFM303

DON BOSCO INSTITUTE OF TECHNOLOGY
DEPARTMENT OF MANAGEMENT STUDIES AND RESEARCH
SEMESTER: 3rd
2nd MID SEMESTER EXAMINATION – 2020 – 2021
DIRECT TAXATION

Date: 27/11/2020 **Time: 11:30PM to 01:00PM**
Duration: 1 ½ Hr **Full Mark: 50**

Note: i. Answer any two from Part - A.
ii. Part – B is Compulsory.

Part – A

1	a	Who is a specified employee?	[3 M] [CO-1] RBTL-1
	b	WDV of a machinery (rate of depreciation @ 15% Rs 5,00,000. New machinery purchased on 31/12/2019 having same rate of depreciation Rs 1,00.000. Compute the depreciation for the A.Y 20-21	[7 M] [CO-1] RBTL-2
	c	X, an employee of MN Ltd, receives Rs 93,000 as gratuity under the payment of gratuity Act, 1972. He retires on January 2, 2018 after rendering service of 20 years and 6 months. At the time of retirement monthly salary was Rs 8,000 (inclusive of dearness allowance of Rs 200 per month) calculate amount of gratuity chargeable to tax.	[10 M] [CO-1] RBTL-2
2	a	Define perquisites under section 17(2)	[3 M] [CO-1] RBTL-1
	b	X Ltd. Owns two plants – Plant A and plant B – on April 1,2019 (rate of depreciation: 15% , depreciated value on April 1,2019 Rs 2,37,000). The company purchases plant C on May 31, 2019 for Rs 20,000 and sells plant A (on April 10, 2019), plant B (on December 12,2019) and plant C (on March 1,2020) for Rs 10,000, Rs 15,000 and Rs 24,000 respectively. Determine the depreciation charged to the block.	[7 M] [CO-2] RBTL-2
	c	X, a resident of Ajmer, receives Rs 1,92,000p.a as basic salary during the PY 19-20. In addition, he gets Rs. 19,200 p.a as dearness allowance forming part of basic salary for all retirement benefits, 7% commission on sales made by him (sales amount Rs 86,000) and Rs 24,000 p.a. as HRA. He however pays Rs 21,500 p.a. as house rent. Calculate taxable H.R.A.	[10 M] [CO-1] RBTL-3
3	a	What do you mean by profits in lieu of salary.	[3 M] [CO-2] RBTL-1

24/11/20 24/11/20

	b	X, retires from ABC on June 30, 2019. He gets pension of Rs 20,000pm up to January 31,2020 with effect from February 1,2020 he gets 60% of pension commuted for Rs 10,71,000. Does it make any difference if he also gets gratuity of Rs 4,00,000 at the time of retirement? Calculate the taxable pension.	[7 M] [CO-2] RBTL-2
	c	Calculate taxable salary of Mr. Vishwanath for the A.Y 20-21. He works in private company in Chennai. 1)Basic pay Rs 68,000 p.m. up to 31-12-19 and Rs 73,000 p.m. from 1-1-20. 2)Dearness allowance – 70% of basic pay (enters into retirement benefits) 3)city compensatory allowance Rs 8,000 per month. 4)he is provided with rent free accommodation at Chennai. 5)free service of watchman and gardener to whom company paid a salary Rs 8,000 per month each. 6)from 1-10-2019 comapny provided him a car (1.3Ltrs) (Expenses of the car are met by the company).car is used for both official and private purpose. 7)medical bill payment of Rs 70,000(treatment was provided at a private hospital). 8)Company paid Gas and electricity bill of Rs 20,000 during the year on behalf of employee where as Mr. Vishwanath paid professional tax of Rs 300pm.	[10 M] [CO-2] RBTL-5
		Part – B	
		Compulsory	
1	a	Smt. Sahana (age 45 years) furnishes the following particulars for previous year 19-20 1)Basic Rs 25,000 per month. 2)D.A Rs 5,000 per month(enters into retirement benefits) 3)Tour allowance Rs 1,000 per month(80% spent for official use) 4)Transport allowance Rs 2,000 per month 5)Hostel allowance Rs 500 per month for one child.	[10 M] [CO-2] RBTL-3

		6)The company gave her rent free furnished house for which paid rent of Rs 10,000 per month. The company paid Rs 2,000 per month as hire charges for the furniture. She has appointed a maid for whom the company pays Rs 3,000 per month as salary. She is also provided with a small for personal and official use and car expenses (including driver salary) are borne by the company. 7)Reimbursement of medical expenses for her spouse treatment in a private hospital Rs 35,000. Calculate taxable salary income for the A.Y.20-21. After considering the following a)during the year she paid LIC premium on her life – Rs 5,000 and on her mother's life – Rs 3,000 b)deposited in PPF Rs 25,000 c)professional tax paid 24,000 p.a. d)Deposited in NSC –Rs 25,000. Also compute deductions U/S 80C.	

Revised Bloom's Taxonomy Level: L1 – Remembering, L2 – Understanding, L3 – Applying, L4 – Analysing, L5 – Evaluating

24/11

24/11/2020

Wayanamac Education Trust (R)
DON BOSCO INSTITUTE OF TECHNOLOGY
Kumbalagodu, Mysore Road, Bangalore 560 074
Ph: +91-80- 28437028 / 29 / 30 Fax: +91-80- 28437031
www.donboscobangalore.education

SCHEMA & SOLUTIONS FOR INTERNAL ASSESSMENT – VII III

ACADEMIC YEAR 2017-18

Sub Title: Direct TAX

Sub Code: 18MBAFM303

Question No.	Solution	Marks allocated
1 a)	An Employee shall be a specified Employee, if he falls under any of the following 3 categories.	
1)	he is a Director of a Company	3
2)	He, i.e. the Employee, has a substantial interest in the company.	
3)	His income under the head 'salary' exclusive of the value of all benefits or amenities not provided for by way of monetary payment, exceeds Rs. 50,000.	
1 b)	Assuming machine is put to use on same day Dep on 500,000 @ 15% 75,000 + Dep on Addn. 7.5 @ 100,00 7500 82,500	
	Assuming machine has not been used. Dep on WDV 500,000 @ 15% 75,000 75,000	7

Question No.	Solution			Marks allocated
1 c)	Gratuity Received		93,000	
	– Exempt.			
	Actual	93,000		
	Maximum	20,00,000.		
	$\frac{15}{26} \times 800 \times 20$	92,308	92308	10
		Taxable Gratuity	692	
2 a)	perquisites. Casual Emolument or benefit allowed to an office or position in addition to salary or wages. perquisites may be provided in cash or kind.			3
b)	Depreciated value of block (AQ3)		237000	
	+ Cost of plant c		20,000	
			257,000	
		None		
	– Sale proceeds A, 3, 9C		49000	
	WDV of block (Empty)		208,000	7

No Depreciation is available if the block of assets ceases to exist on the last day of previous year.

Sub Title: _____ Sub Code: _____

Question No.	Solution	Marks allocated
2 c)	"Salary" for the purpose of HRA Basic 192000 + DA 1920 + commission 6020 7% of 8600 — Salary. 217220 HRA received: 24000 - Exempt ① 40% of salary. 86,888 ② Actual 24000. ③ Rent paid 21500 - 10% of salary 21722 Nil ✓ Nil Taxable HRA 24000	10
3 a)	profit in lieu of salary. → Amount received in connection with termination of Employment. → Amount received in connection with modification of Employment. → Encashed Gratuity → Encashed HRA → Encashed RPF.	3

Question No.	Solution		Marks allocated
3 b)	**Non- Govt Employee.**		
	Less commuted pension		
	From June to January	140,000.	
	20000 X7		
	July 31 to March 31	16000	
	$20,00 \times \frac{40}{10} \times 2$		
	Total Less commuted	156,000	
	commuted pension.		
	commuted value of pension 60%	1071,000	
	Full commuted pension	1785,000	
	1/2 x do not receive gratuity)		
	Exempt (1/2 of Total)	892500	
	Taxable (1071000 - 892500)	178,500	
	1/3 x receive gratuity.		
	Exempt (1/3 of Total)	595,000	
	Taxable (1071000 - 595000)	476,000	

Question No.	Solution		Marks allocated
3 (a)			
	Basic salary.		
	6800 x 9 = 61200		
	7300 x 3 = 21900	83,100	
	DA (70%)	581700	8
	CCA (800 x 12)	9600	
	Rent free Accomodation		
	15% of salary.	226305	
	Watchman	9600	
	Gardner	9600	10
	Cal (>1.6)	10800	
	1800 x 6		
	Reimbursement of medical bills	70,000.	
	Gas & Electricity	20,000	
	Gross salary.	20,27,805	
	– Std. ded	50,00	
	– prof. tax	3600	
	taxable salary.	19,74,205	

SCHEMA & SOLUTIONS FOR INTERNAL ASSESSMENT – I / II / III

ACADEMIC YEAR 2019-20

Sub Title: _____ Sub Code: _____

Question No.	Solution			Marks allocated
	Case - study.			
	Basic salary.		300,000.	
	2500 X 12		60,000.	
	D.A 5000 X12			
	Tot. allowance 1200			
	-Exempt 960		2400	
	80%		24,000	
	Transport allowance 200X12			
	Hostel (500X12X1)	600		
	-Exempt (300X12X1)	3600	2400	
	RFA.	58,320		
	15% of salary	2400		
	+ furniture		82320	
	maid salary. (300X12)		36,000	
	Car. 1800X12	2160		
	Driver: 900X12	10,800	32,400	
	Reimbursement of medical bills		3500	
			574,520.	7
	- Std. ded		50,000.	
	prof. tax		2400	
	taxable salary		5,00,520	
	Ded U/S 80C			
	LIC 5000			3
	PPF 25000			
	NSC 25,000	55,000		

02/12/2020

2/12/20

2/12/20

Registration No
College Roll No

Total no of printed pages: 04 MBA – 18MBAFM303

DON BOSCO INSTITUTE OF TECHNOLOGY
DEPARTMENT OF MANAGEMENT STUDIES AND RESEARCH
SEMESTER: III
3rd MID SEMESTER EXAMINATION – 2020 – 2021
DIRECT TAXATION

Date: 13/01/2021 **Time: 11:30PM to 01:00PM**
Duration: 1 ½ Hr **Full Mark: 50**

Note: i. Answer any two from Part - A.
ii. Part – B is Compulsory.

Part – A

1	a	What do you mean by indexation?	[3 M] [CO-1] RBTL-1
	b	Mention any 7 incomes which comes under income from other sources.	[7 M] [CO-1] RBTL-2
	c	X purchases 1,000(non listed) shares in Y ltd, on August 16, 2002 for Rs 19090. On May 17, 2004 he gets 500 bonus shares. On October 20, 2014, he acquires 1500 right shares for Rs 14,582. He sells 3000(non-listed) shares in Y ltd on February 12, 2018 at the rate of Rs 110 per share (brokerage on sale 1%). He owns one residential house property. He purchases a residential house on June 29th,2018 for Rs, 2,90,000. Ascertain the amount of capital gains chargeable to tax for the A.Y 2020-21.	[10 M] [CO-1] RBTL-2
2	a	What is MAT?	[3 M] [CO-1] RBTL-1
	b	Explain any 4 deductions under section 80C to 80 U(for example 80 D)	[7 M] [CO-2] RBTL-2
	c	Dr. Suresh is a medical practitioner. Besides his own practice, he works as a part time physician in a private hospital for which he receives a monthly remuneration. Receipts Consultation fees -2,60,000 Gross remuneration from the private hospital-1,24,000 Retainer fee – 60,000 Interest on savings bank A/C- 13,000 Payments Rent and electricity- 12,000 Telephone charges- 2,400	[10 M] [CO-1] RBTL-3

9/1/21 9/1/21 09-01-2021

Printing and stationery- 500

Car expenses – 12,000

Wages of clinical assistant- 3,600

Drivers salary- 3,600

LIC premium- 2,400

The WDV of the car and furniture at the clinic as on 1.4.2019 are noted to be Rs 25,000 and Rs 2,000 respectively. 20% of the use of the car and telephone expenses is related to private purpose. Provide for depreciation on car @15% and furniture @ 10%. Compute the total income for A.Y 2020-21

3	a	Mention any 3 examples which are not capital assets.	[3 M] [CO-2] RBTL-1
	b	Briefly explain the provisions related to set off and carry forward of losses.	[7 M] [CO-2] RBTL-2
	c		[10 M] [CO-2] RBTL-5

	Amount		Amount
General expenses	13,400	G/P	3,15,500
Bad debts	22,000	commission	8,600
Advance tax	8,000	brokerage	37,000
insurance	600	Sundry receipts	2,500
Salary to staff	26,000	Bad debts recovered	11,000
Interest on O.D	4,000	Int on debentures(22,500+TDS2500)	25,000
Interest on loan to Mrs A	42,000	Int on deposit(11,700+TDS1300)	13,000
Interest on capital	23,000		
depreciation	48,000		
advertisement	7000		
Contribution to employee PF	13,000		

9/1/24 9/1/24 09/1/2024

		Net profit	1,60,600		
		Total	4,12,600	Total	4,12,600

1)The amount of depreciation allowance is Rs 37,000 as per IT rules and it includes depreciation on permanent sign board.

2)advertisement expenditure 3000/- being cost of permanent sign board fixed on office premises.

3)income of Rs 4500 accrued during the previous year is not recorded in P&L A/C.

4)A pays Rs 6,000 premium on LIC policy of Rs 70,000

5)General expenses includes

i)Rs 500 given to Mrs A for arranging a party in honour of a friend who has recently come from Canada.

ii)Rs 1,000 being contribution to a political party.

6)Loan was taken from Mrs A for payment of arrears of income tax.

Calculate income from Business.

Part – B

Compulsory

1	a	From the following information, compute the tax liability of Raj and company. Keeping in view the provisions of MAT U/S 115 JB for the A.Y 2020-21.				**[10 M] [CO-2] RBTL-3**
		Expenses relating to business	4,50,000	Long term capital gain	1,00,000	
		Income tax	20,000	sales	7,00,000	
		General reserve	40,000	Deferred tax	1,00,000	
		Provision for contingent liability	40,000			
		Provision for Diminution in value of an asset	50,000			
		Proposed dividend	50,000			
		Net profit	2,50,000			
		Total	9,00,000	Total	9,00,000	

		1)B/F loss as per books of account Rs 1,00,000 2)B/F depreciation as per books of account Rs 80,000 3)B/F loss under the head capital gains (As per income tax Act) 60,000 4)B/F unabsorbed depreciation Rs 3,00,000 for the A.Y 20-21.	

Revised Bloom's Taxonomy Level: L1 – Remembering, L2 – Understanding, L3 – Applying, L4 – Analysing, L5 – Evaluating

9/1/21

09/1/2021

Wayanamac Education Trust (R)
DON BOSCO INSTITUTE OF TECHNOLOGY
Kumbalagodu, Mysore Road, Bangalore 560 074
Ph: +91-80- 28437028 / 29 / 30 Fax: +91-80- 28437031
www.donboscobangalore.education

SCHEMA & SOLUTIONS FOR INTERNAL ASSESSMENT – I / II / III

ACADEMIC YEAR 2017-18

Sub Title: Direct Tax

Sub Code: 18mBAFM303

Question No.	Solution	Marks allocated
1 a)	Indexation is the process through which you adjust the purchase price of an asset to account for inflation between the time you bought & sold it.	
1 b)	Income from other sources.	
	→ Dividend received from a foreign company.	
	→ winnings from lotteries, cross word puzzles, etc.	
	→ Interest received on FD & Saving compensation.	
	→ Gifts received by an individual or HUF.	
	→ Income commission received by an assessee.	
	→ Income from selling of a house	

Question No.	Solution			Ma... allocat...
	by a tenant.			
→	Interest on deposits with a Company.			
1 CG		1000 shares	500 Bonds	1500 Rights
			55000	165,000
	Sales	110,000	550	650
	- Exp's (1.1)	1100		
		108900	54450	163350
	N.S.C			(14582 × 289/240)
	- Indexed cost of Acq.	(19090 × 289/105)	—	17559
		52,543		
		56357	54450	145791
	LTCG			
			100%	89%
	Rank	51.75%		
	LTCG / N.S.C	3	1	2
	Rank			
			54450	14575
	Exemption U/S 54F	51626		
		4731	—	—

Cap Gain to tax

$\left(\frac{99759}{108900} \times 52357\right)$

Question No.	Solution	Marks allocated
	his health or any health of family (wife & children) Additional Deduction of Rs. 10,000 is available.	
-)	Deduction U/s 80 DDB. It provides for a deduction to a resident individual on Actual Expenditure incurred on the medical treatment of individual himself or his family members. Actual paid or 40,000 (whichever is less).	
2 q	Salary. 124000 -Std. ded 50,000 Salary income 74,000 Consultancy fee 260,000 Retainership fee 60,000 Prof. income 390,000.	

Question No.	Solution	Marks allocated
2 a)	MAT. It is introduced to target those companies that make huge profits & pay dividends to their shareholders but pay minimum tax by taking advantage of the various deductions.	10
2 b)	Deductions U/s 80 C.	
→	LIC premiums	
→	5 year term Deposits	
→	ULIP	
→	mutual Funds	
→	post office saving schemes like N.S.C or KVP	
→	Infrastructure bonds.	
	Deduction U/s 80 CCC	
	contribution to pension funds	
	Deduction U/s 80 D	
	medical insurance premiums paid by an individual on	

Sub Title: _____ Sub Code: _____

Question No.	Solution	Marks allocated
	Expenses Rent 12,000 Telephone 1920 Printing 500 maint. bgs 960 wages 360 Drivers salary 2880 Dep on cal 3000. Dep on furniture 20 3370 28630 Income from profession 13000 Income from OIS GTI 383300	
3 a)	Household furniture Household cal. Inventory. Stock in trade	

Question No.	Solution	Marks allocated
3 b)	set off & carry forward of losses. set off losses means adjusting the losses against the profit or income of that particular year. Losses that are not set off against income in the same year can be carried forward to the subsequent years for the set off against income of those years	
a)	An intra-head set-off. Losses from one source of income can be set-off against income from another source under the same head. For Example loss from Business A can be set off against profit from business B.	

Question No.	Solution	Marks allocated
	Exceptions to intra-head	
→	Loss of speculative business will only be set off against the profit of the speculative business.	
→	Capital Loss of any be adjusted towards Long term Capital Gains	
	Inter-head set off	
	After the intra-head adjustments, the tax payers can set off remaining losses against income from other heads.	
→	Loss of house property can be set off against income under any head.	
→	Business loss can be set off against any other income Except income from salary.	

Question No.	Solution	Marks allocated
	carry forward of losses. After making the appropriate & permissible intra-head & inter head adjustments there could still be any adjusted losses. These can be carried forward to futures years.	
	→ Loss from house property can be C/F up to next 8 A.Y	
	→ Loss from business can be C/F up to next 8 A.Y	
	→ Capital losses can be C/F up to next 8 A.Y.	
3 c)	Net profit 160,600	
	+ Ex admissible 8000	
	Advance tax 42,000	
	Int on loan to mr. X 23,000	
	Int on capital 1000	
	cont to political party	

Question No.	Solution			Marks allocated
	Excess Dep	11,000		
	Expn for arranging a party	500		
	salary	4500		
	Cap. Expenditure	3000	13,500	
			294,100	
	- Inc related Income			
	Int on Debentures		25,000	
	Int on Deposits		13,000	
	Bus. Income		260,600	
	GTI			
	Bus. Income		260,600	
	Other sources		38,000	
	GTI.		298,600	
	- 80 C		6000	
	TI			
	80 G			
	Cont to political party.		1000	
	Net Income		291,600	
	Tax → Nil			

Sub Title: _____ Sub Code: _____

Question No.	Solution	Marks allocated
	Case - study	
	NIP 250,000.	
	+ Exp admissible	
	income tax 20,000	0
	Gen. reserve 40,000.	
	prov for cont. liabilities 40,000	
	prov for Diminution in value of asset 50,000	
	prop. Dividend 50,000	
	450,000.	
	- Un related income	
	LTCG 100,000	
	Dep. Tax 100,000	
	Bus. Income 250,000.	
	Take income	
	Bus. income 250,000.	
	- Un as Sec. Dep 250,000	
	—	
	Cap Gain 100,000	
	C/F & Un. Dep 50,000	
	Loss 50,000	
	Take None	

Sub Title: _____ Sub Code: _____

Question No.	Solution	Marks allocated
	BIP.	
	NIP 250,000	
	+ Exp admissible 20,000	
	C. tax 40,000	
	Gen. reserve 50,000	
	prov for Dimi	
	prov for cont liab. 40,000	
	450,000.	
	100,000	
	– Def. tax	
	– BIE loss 100,000	
	or 80,000 80,000	
	BIE. & Dep WDV	
	270,000.	
	MAT @ 15% 40,500	
	+ Edu. Cess 4% 1620	
	42,120.	

SPARK

Date _____ Page _____

PART - B

19)

Incomes	Ordinarily Resident	Not Ordinarily Resident	NRI
1) Interest on German development Bonds			
* 3/5 (60000 X 3/5)	24000	24000	24000
* outside India (60000 * 3/5)	36000	—	—
2) Income from agriculture in Bangladesh Received there	181000	—	—
3) Income from property in canada Received outside India	86000	—	—
4) Income earned from Kampala (Uganda) which is controlled from Delhi			
* 15000 Received in India	15000	15000	15000
* 50000 outside	50000	50000	—
5) Dividend paid by a foreign company but Received in India on April 10-17	46500	46500	46500
6) past unitaxed profit of 2008-09 Brought to India	—	—	—
7) profits from a business in matras and managed outside India	87000	87000	87000
8) profit from a former employer in India Received in Rangoon	36000	36000	36000
9) Gift in foreign currency from a friend Received in India.	80000	80000	80000
10) profits on sale of building	1480000	1480000	1480000
Gross TOTAL Income.	2061500	1758500	1703500

II more than 182 days @ more in the PY

* He doesn't satisfye 1st Basic condition

conclusion:- NRI

III more than 182 days @ more in the PY

* He doesn't satisfye.

conclusion:-

NRT

IV more than 182 days.

conclusion: NRT

SPARK

Date _____ Page _____

* He satisfies Basic condition.

Additional condition:

① If has been Resident in India on at least 2 out of 10 p.y immediately p the Relevant p.y.

2018-19 - 104 - R 416 days
2017-18 - 104 - R 416 days
2016-17 - 104 - R
2015-16 - 104
2014-15 - 104
2013-14 - 104
2012-13 - 104
2011-0 - 104
2009-10 - 104

* He satisfies the 1st Additional condition

② 730 days during p.y.
788 days.

* He doesn't Satisfy 2nd Additional condition.

* Conclusion:-
Resident But not ordinary Resident

Revenue Receipts are the Rights of a Bus to compensation Resulting from normal Business operations and are Recorded when the Business has earned the Right to Receive them.

Capital Receipts are funds Received from increasing a liability ⊕ decreasing an assets.

Ex) AY = 2020-21
PY = 2019-20

Special case - II

1) ① He is in India in the PY for a period of 183 days ② more in the PY

* Not satisfied 1st Basic condition

2) 60 days & 365 days in 4 PY.

PY = 104 days

4 PPY = 104
104
104
104
416 days.

SPARK

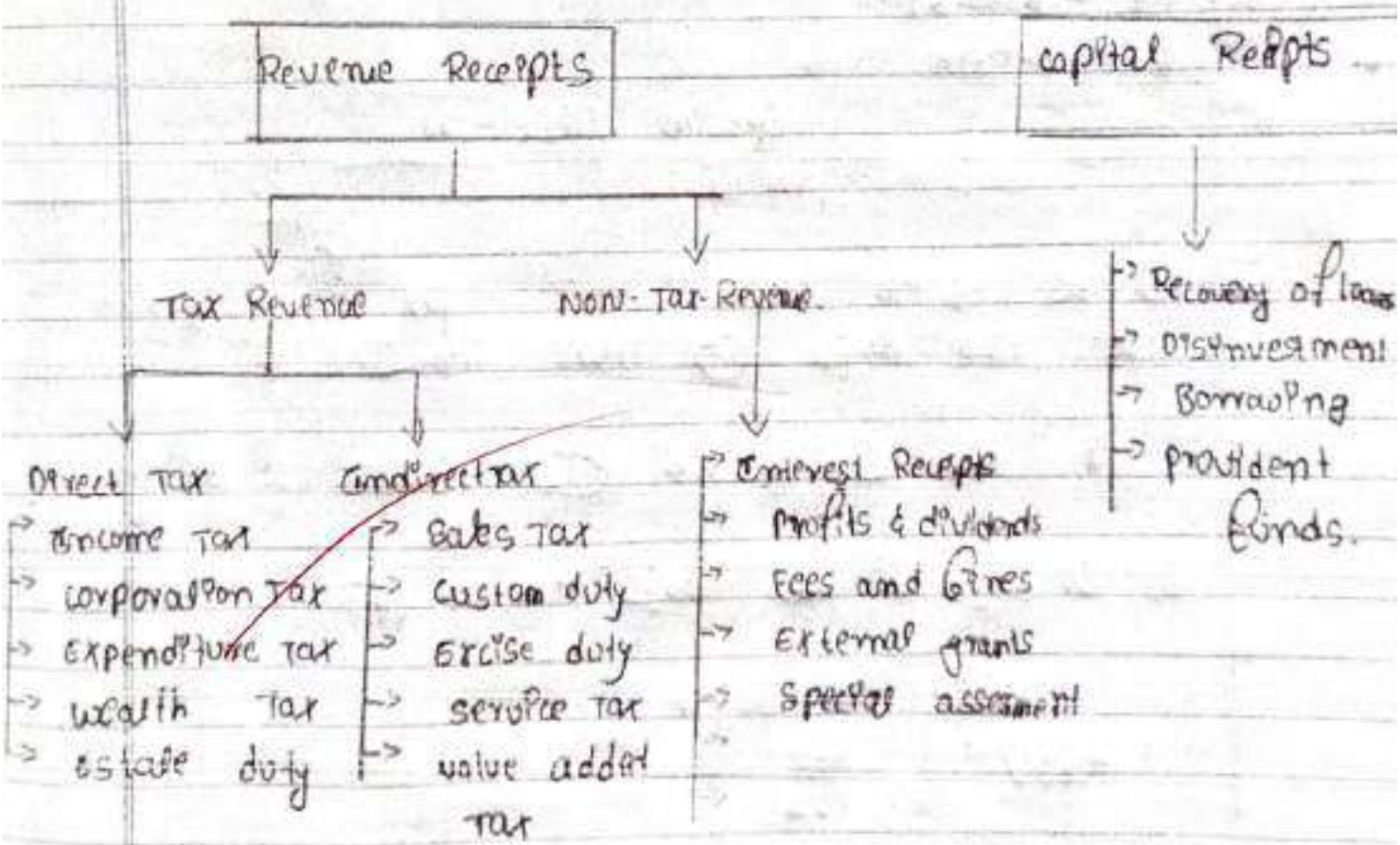
Date _____ Page _____

2a) previous year:

previous years means financial year immediately preceding the Assessment year. previous years for this assessment year would be 2019-20

2b) capital Receipts are the income generated from investment and financing activities of the business.

Revenue Receipts are the income generated from the operating activities of the business



* If the individual satisfies any one of the conditions mentioned u/s 6(1), He is a Resident

* If both the above conditions are not satisfied the individual is a non-Resident.

(c) AY = 2020-21
PY = 2019-20 Calender year: 2018 - 16 days
February - 1-2020 : 10.30pm.
Feb- 2-29. = 28
march = 31
59 days

① Basic condition:-

① He is in India in the PY for a period of 182 days (or) more in the PY.

* 59 days during PY.

* He doesn't satisfies Both the conditions.

Conclusion:-

Non Resident of India.

SEMESTER Examination 2019-21

5 sem

Direct Tax

(a) ASSESSEE :-

A person liable to pay any tax or any other sum of money under this Act.

(b) Roles :-

1) Basic condition u/s 6(1) :-

1. Existence in India for a period of 182 days or more during the previous year : or
2. Existence in India for a period of 60 days or more during the previous year and 365 days or more during the four years immediately preceding the previous year

2) Additional conditions : u/s 6(6) :-

1. He has been Resident in India in at least 2 out of 10 previous years immediately preceding the Relevant previous year ; or.

2. He has been in India for a period of 730 days or more during 7 years immediately preceding the Relevant previous years

Wayanamac Education Trust (R)
DON BOSCO INSTITUTE OF TECHNOLOGY
Kumbalagodu, Mysore Road, Bangalore – 560074
Ph: +91-80-28437028 / 29/30 Fax: +91-80-28437031
www.dbit.co.in

DEPARTMENT OF MANAGEMENT STUDIES AND RESEARCH

ASSIGNMENT – III

Subject: SERVICES MARKETING
Sub Code: 18MBAMM303

Assignment display date: / /2020
Assignment Submission date: / /2020

Faculty name: MR. SHIVALINGAPPA B
Return of Assignment: / /2020

All Questions are to be answered compulsorily and carry equal marks

Max Marks: 20

	Question Description	Bloom level	Marks	
1	Explain the human resources strategies for closing GAP 3.	3	4	Co1
2	Explain the different service quality dimensions.	2	4	Co1
3	Explain the various roles of service scope .	2	4	Co1
4	Explain the various service pricing strategies.	2	4	Co1
5	What are different categories of strategies to match service promises with delivery?	3	4	Co1

10/12/20

Wayanamac Education Trust (R)
DON BOSCO INSTITUTE OF TECHNOLOGY
Kumbalagodu, Mysore Road, Bangalore – 560074
Ph: +91-80-28437028 / 29/30 Fax: +91-80-28437031
www.dbit.co.in

DEPARTMENT OF MANAGEMENT STUDIES AND RESEARCH

ASSIGNMENT – II

Subject: SERVICES MARKETING
Sub Code: 18MBAMM303

Assignment display date: / /2020
Assignment Submission date: / /2020

Faculty name: MR. SHIVALINGAPPA B
Return of Assignment: / /2020

All Questions are to be answered compulsorily and carry equal marks

Max Marks: 20

	Question Description	Bloom level	Marks
1	Explain the various types of service encounters.	1	4
2	Explain the role of service quality in offensive and defensive marketing.	2	4
3	Explain the process for customer defined service standards.	2	4
4	Explain the strategies for enhancing customer participation.	2	4
5	Explain the strategies for matching capacity and demand.	2	4

****

Wayanamac Education Trust (R)
DON BOSCO INSTITUTE OF TECHNOLOGY
Kumbalagodu, Mysore Road, Bangalore – 560074
Ph: +91-80-28437028 / 29/30 Fax: +91-80-28437031
www.dbit.co.in

DEPARTMENT OF MANAGEMENT STUDIES AND RESEARCH

ASSIGNMENT – I

Subject: SERVICES MARKETING **Sub Code:** 18MBAMM303

Assignment display date: / /2020 **Assignment Submission date:** / /2020

Faculty name: MR. SHIVALINGAPPA B **Return of Assignment:** / /2020

All Questions are to be answered compulsorily and carry equal marks

Max Marks: 20

	Question Description	Bloom level	Marks	
1	Explain the concept of services marketing triangle with an illustration.	1	4	CO1
2	Explain the gaps model of service quality, with an illustration.	2	4	CO1
3	Enumerate search, Experience and credence properties.	2	4	CO1
4	Explain the 7 P's of service marketing mix.	1	4	CO1
5	Explain the types services research	2	4	CO1

****

10/10/20

Book Profit (115 JB) MAT

	₹
Net profit	350000
(+) Inadmissible Expenses	
Income Tax	20000
General Reserve	40000
Provision for Diminution	50000
Provision for contingent liabilities	40000
	450000
(+) Deffered Tax	100000
	550
(-) BIF of Brought forward loss.	
Brought forward of DEP 100000 / 80000 (w.e.)	80000
Book Profit.	270000
minimum alternative Tax (15%)	
270000 x 15/100	40500
(+) Education Cess 4% (40500 x 4/100)	1620
	42120

Case STudy

1a)

Net profit		850000
Add: Inadmissable expenses		
Income tax	80000	
General Reserve	40000	
provision for contingent liabilities	40000	
Provision for diminution in value of an asset	50000	
proposed Dividend	50000	800000
		450000
(-) unRelated Income		
long term capital gain		100000
Deffered Tax		100000
Business Income		850000
Total Income		
Business Income	850000	
(-) unabsorbed Dep (300000)	850000	
	Nil	
capital gain	100000	
(-) unabsorbed Dep	50000	
(-) Brought forward of capital loss	50000	
Total Income	—	

10

Taxability

₹50000 TO 500000

fixed 12500

S-1X ₹91600 - ₹50000 / 41600

41600 x 5/100

41600

2080

WEL

2080

(-) 80 C 7A

12500] W

2080] E

2080

NIL.

3C) Computation of Taxable Income from Business for the A.Y 2020-21 P.Y- 2019-20

	₹	₹
Net profit		160600
Add :- Inadmissible Expenses Debited to P/L A/c		
Advance Tax	8000	
Interest on loan mrs X	42000	
Interest on capital	23000	
Contribution to political party	1000	
excess DPD (48000 - 37000)	11000	
Expenses for arranging a party	500	
Salary to A	45000	
Advertisement expenditure it includes Person Sign Board	3000	133500
		294100
4) Business Income Not Recorded		
5) Unrelated Income		
Interest on Debentures	25000	
Interest on Deposits	13000	38000
Business Income		260600
Total Income Total Income	260600	
BOS Business Income	260600	
6) Other Incomes (Debenture Int)	38000	
GTI	298600	
7) 80 C		
LIC	6000	
Contribution to Political party	1000	
Net Income	291600	

carry forward and set off in subsequent 4 AY

3) Loss from non-speculative Business:
Loss from non-speculative Business cannot be set off against income from non-speculative Business and income from speculative Business. Such loss can be carried forward and set off in subsequent 8 AY against Business Income.

4) Capital loss:
Either short term capital loss or long term capital loss cannot be set off during same year such loss can be carried forward and set off subsequent 8 AY

5) Loss from owning and maintaining Racehorse
cannot be set off during the same such loss can be carried forward and set off in subsequent 4 AY.

3a) minimum alternative Tax is a Tax payable under Income Tax Act. The concept of MAT was introduced to target those companies that make huge profits and pay dividend to their shareholders But pay no/ minimal Tax by taking advantage of the various deductions and exemptions allowed to Income Tax act.

Now all companies that Record a Book profit shall have to pay a minimum alternative Tax @ 15% under the companies Act. Thus MAT is a way of making companies pay a minimum amount of Tax.

3b) carry forward and set off of losses:

It is not possible to set off the losses during the same ay such a loss can be carried forward to set off against income of the next AY is called "carry forward and set off loss"

The following are the provisions:

i) loss from House property:

If the entire loss from House property cannot be set off in the same year it can be carry forward and set off in subsequent 8 AY

ii) loss from speculation Business:

If loss from speculation Business cannot be set off in the same AY it can be

	1000 Shares	500 Bonus Shares	1500 Right Shares
Sales (110)	110000	55000	165000
(-) Expenses of Transfer 1%			
110000 x 1/100 =	1100	550	1650
55000 x 1/100 =			
165000 x 1/100 =			
NSC	108900	54450	163350
Indexed cost of Acquisition (19090 x 289/105)	58543	-	17559
(14588 x 289/340)			
LTCG	56357	54450	145791
LTCG x 100 / NSC	51.75%	100%	
	III	I	II
(-) Exemption 54S			
Investment x Capital gain / NSC	89759 x 56357 / 108900	54450	145791
Ans: 290000			
	46451		
Capital gain	9906		

3rd Internals

Direct Tax

SPARK

1a) Indexation is used to adjust the purchase price of an investment to Reflect the effect of inflation on it. A higher purchase price means lesser profits which effectively means a lower Tax with the Help of Indexation you will be able to lower your long-term capital gain which brings down your Taxable income

3

1b) 1) Interest Received from Saving Bank.
2) Post office savings.
3) Interest income from fixed deposits
4) Dividend Received from a domestic company
5) Family pension.
6) Rental Income.
7) Income from Business. (He Runs Business during the P/
8) Recurring deposits
9) Income from lottery, winning. Races, games
10) Interest on Securities.
11) Amount gift.

4/2

4b
50

USN | 1 | D | B | | | | | | |

Wayanamac Education Trust ®

DON BOSCO INSTITUTE OF TECHNOLOGY

Kumbalagodu, Mysore Road, Bengaluru – 560074
www.dbit.co.inPh:+91-80-28437028/29/30 Fax:+91-80-28437031

Department of Physics

Internal Assessment Test-I

Course Name: Engineering Physics | **Course Code**: 18PHY22 | **Date**:24-06-2021

Semester & Section: II SEM & Section F,G,H,J | **Max marks**: 30 | **Time**:1.00 to 2.00pm

Note: Answer any Two full questions, choosing only One full question from each Module.
Each full question carry maximum of 15 marks

Q NO.	Module-1 Questions	MARKS	CO	RBTL
1	a) With a neat diagram explain the construction and working of Reddy tube.	6	1	4
	b) Define simple harmonic motion. Derive the expression for equivalent spring constant in series combination.	5	1	2
	c) A spring undergoes an extension of 5 cm for a load of 50g. Find its force constant, angular frequency and the frequency of oscillation, if it is set for vertical oscillations with a load of 200 g attached to its lower end.	4	1	5
	OR			
2	a) What are damped oscillations? Derive the expression for decaying amplitude.	6	1	4
	b) Define Mach number. Distinguish between ultrasonic, subsonic, supersonic and hypersonic waves with one example	5	1	2
	c) Evaluate the natural frequency of a spring of force constant 1974 N/m, carrying a mass of 2kg.	4	1	5
	Module-4 Questions			
3.	a) Derive the expression for energy density in terms of Einstein's coefficients.	6	4	4
	b) With a proper energy level diagram explain the construction and working of Semiconductor laser.	5	4	2
	c) A pulsed laser emits photons of wavelength 780nm with 20mW average power/pulse. Calculate the number of photons contained in each pulse if the pulse duration is 10 ns.	4	4	5
	OR			
4	a) Explain the construction and working of CO_2 Laser with the help of diagrams.	6	4	4
	b) What is a laser range finder? Give the qualitative explanation of construction and working of laser range finder.	5	4	2
	c) Find the ratio of population of two energy levels in a medium at thermal equilibrium, if the wavelength of light emitted at 291K is 6928Å.	4	4	5

Name & Signature of Course Instructor

Dr. Bhavyashri Shetty

Bhyashri

23.6.21

Scrutinized by (Name & Signature)

1) Bhyashri (Dr Bhavyashri Shetty)

2) (Yashodha. P. R)

3) HOD- 23/06/21

Scanned by CamScanner

DON BOSCO INSTITUTE OF TECHNOLOGY BANGALORE-74
DEPARTMENT OF PHYSICS
ACADEMIC YEAR: Dec-September 2020-2021

I INTERNAL TEST

Sub Title: Engineering Physics
Sem: II

Sub Code: 18PHY22
Max Marks: 30
Date:24-06-21

SCHEME & SOLUTION

Q. No	Solution	Marks Allotted
1 a.	Diagram	2 M
	construction	2 M
	working	2 M
b	definition of S.H.M.	1 M
	diagram + derivation of spring constant-	(1+3) M
c.	Data: $x = 5\times10^{-2}$ m load, $M = 50\times10^{-3}$ kg load $m = 200\times10^{-3}$ kg $\nu = f = ?$ Force constant $k = \frac{F}{x} = \frac{mg}{x}$ $= \frac{50\times10^{-3}\times9.8}{5\times10^{-2}} = 9.8$ N $\omega = \sqrt{\frac{k}{m}} = \sqrt{\frac{9.8}{200\times10^{-3}}}$ $= 7$ rad/s. $\nu = \frac{\omega}{2\pi} = \frac{7}{2\pi} = 1.11$ Hz	2 M 2 M

Q.No.	Solution	Marks Allotted
2a.	definition of damped oscillations	1 M
	Theory upto the Equation of motion	2 M
	derivation upto $x = Ce^{(-b+\sqrt{b^2-\omega^2})t} + De^{(-b-\sqrt{b^2-\omega^2})t}$	3 M
	$C = \frac{x_0}{2}\left[1 + \frac{b}{\sqrt{b^2-\omega^2}}\right]$, $D = \frac{x_0}{2}\left[1 - \frac{b}{\sqrt{b^2-\omega^2}}\right]$	
b.	definition of Mach no: $M = \frac{v}{a}$	1 M
	Ultrasonic, subsonic, supersonic, Hypersonic waves with Example - Explanation	4 M
c.	Data : $k = 1974$ N/m, $m = 2$ kg; $\omega = \sqrt{\frac{k}{m}} = 2\pi\nu$; $\nu = \frac{1}{2\pi}\sqrt{\frac{k}{m}} = 5$ Hz	4 M
3a.	Expression of probability for absorption, Spontaneous and stimulated emission	3 M
	Rate of absorption = Rate of Emissions	
	Boltzmann law	2 M
	Planck's law	
	Arriving at $U_\nu = \frac{A}{B}\left[\frac{1}{e^{h\nu/kT}-1}\right]$	1 M
3b.	diagram of Semiconductor laser + construction	2 M
	Energy level diagram + working	3 M

Q.No.	Solution	Marks Allotted
3c.	Data: $\lambda = 780\,nm = 780\times10^{-9}\,m$ power of pulse $= 20\,mW = 20\times10^{-3}\,W$ $t = 10\,ns = 10\times10^{-9}\,sec$ find $N = ?$ Energy of the photon $\Delta E = \frac{hc}{\lambda} = 2.55\times10^{-19}\,J$ Energy of pulse $= P\times t$ $E = 2\times10^{-10}\,J$ $N = \frac{E}{\Delta E} = 7.86\times10^{8}$	2M 1M 1M
4a.	Diagram + Construction + working of CO_2 laser with Energy level diagram [Marks 1+1, 2+2]	6M
b.	Laser range finder diagram Construction + working (2+2M)	1M 4M
c.	$\lambda = 6928\,A^{\circ} = 6928\times10^{-10}\,m$ $T = 291\,k$ find: $\frac{N_2}{N_1} = ?$ $\frac{N_2}{N_1} = e^{-\frac{h\nu}{kT}} = e^{-\frac{hc}{\lambda kT}}$ $= e^{-71.495}$ $\frac{N_2}{N_1} = 9.14\times10^{-32}$	1M 2M 1M

Signature of Course coordinator

Name : Shushma S
USN : 1DB20IS135
Sec : H
Subject : Physics
Code : 18PHY22

30/30 28/6/21

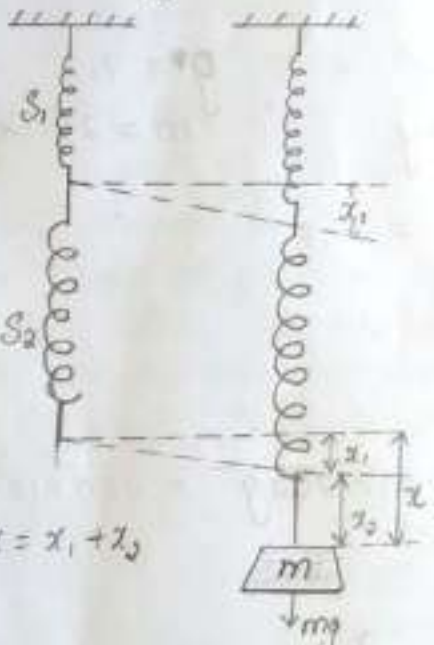
First Internal of II Semester

Module - 1

i) (b) Simple harmonic motion :-

The motion of a body is said to be SHM if the acceleration is directly proportional to the displacement and acts in a direction opposite to that of motion from the equilibrium position.

⇒ Spring constant in series combination :-



Consider the spring "S_1" with force constant 'K_1' suspended by mass 'm' and displacement 'x_1' under the action of restoring force.

∴ From Hooke's law,

$$F = -K_1 x_1$$

$$x_1 = \frac{-F}{K_1} \quad \text{—— (1)}$$

Similarly for the spring S_2,

$$F = -K_2 x_2$$

$$x_2 = \frac{-F}{K_2} \quad \text{—— (2)}$$

x_2 is the displacement of S_2. K_2 is the force constant of S_2. When the springs are connected in series, K_s is the force constant & displaced through 'x' suspended by a same mass 'm'.

From Hooke's law, $F = -K_s x$

$$x = \frac{-F}{K_s} \quad \text{—— (3)}$$

The displacement for series combination is $x = x_1 + x_2$ —— (4)

Sub eqn (1), (2), (3) in eqn (4)

$$\Rightarrow -\frac{F}{K_s} = -\frac{F}{K_1} - \frac{F}{K_2}$$

$$\frac{-F}{K_s} = -F\left[\frac{1}{K_1} + \frac{1}{K_2}\right]$$

$$\frac{1}{K_s} = \frac{1}{K_1} + \frac{1}{K_2} = \frac{K_1 + K_2}{K_1 K_2}$$

$$\boxed{K_s = \frac{K_1 K_2}{K_1 + K_2}}$$

The 'n' number of springs connected in series, then

$$\frac{1}{K_s} = \frac{1}{K_1} + \frac{1}{K_2} + \frac{1}{K_3} + \cdots + \frac{1}{K_n}$$

Time period, $\boxed{T = 2\pi\sqrt{\frac{m}{K_s}}}$

(c) $x = 5cm = 5\times10^{-2}\,m$, $g = 9.8$

Load acting during extension $= 50\,g$ $\quad m = 200\times10^{-3}$

$$K = \frac{F}{x} = \frac{mg}{x} = \frac{50\times9.8\times10^{-3}}{5\times10^{-2}} = 9.8$$

$$\boxed{K = 9.8\ N/m}$$

Q4

where $m = 200g = 200\times10^{-3}\,kg$

$$\omega = \sqrt{\frac{K}{m}}$$

$$\omega = \sqrt{\frac{9.8}{200\times10^{-3}}}$$

$$\omega = \sqrt{49}$$

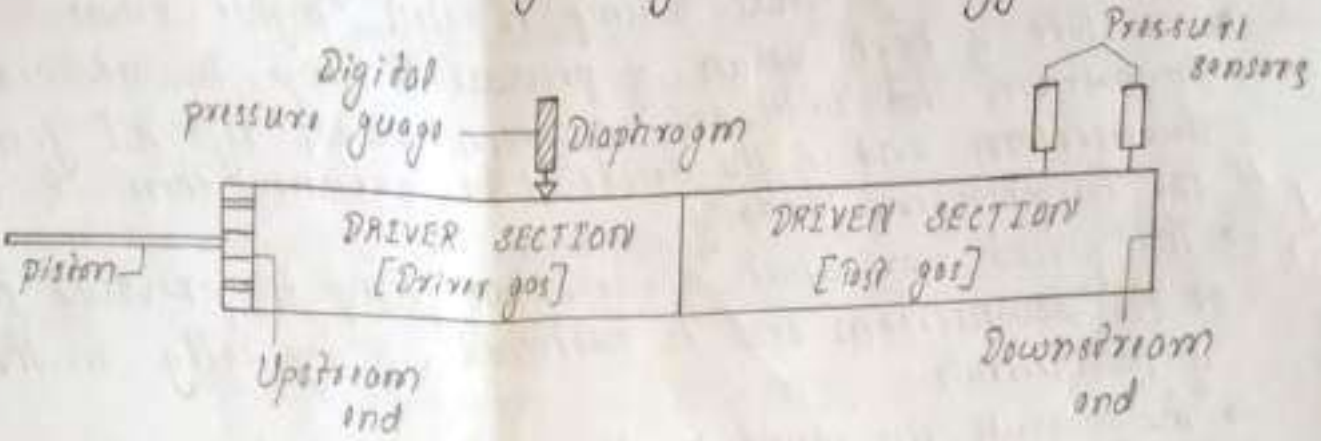
$$\boxed{\omega = 7\ rad/s}$$

$$\Rightarrow \nu = \frac{\omega}{2\pi}$$

$$= \frac{7}{2\pi}$$

$$\boxed{\nu = 1.114\ Hz}$$

Riddy tube is a hand operated shock tube capable of producing shock waves by using human energy.



Construction :-

→ Riddy tube consists of a cylindrical stainless steel tube of about 30mm diameter & length nearly 1m.
→ It is divided into 2 sections one is driver section & the other is driven section separated by a thick aluminium (or) Mylar (or) paper diaphragm of thickness 0.1mm
→ For end of driver tube is fitted with a piston & the far end of driven tube is closed.
→ A digital pressure gauge is mounted in the driver section not to the diaphragm
→ Two piezoelectric sensors S_1 and S_2 are mounted 40mm apart towards the closed end of the shock tube.
→ A port is provided at the closed end of the driven section for filling the test gas to the required pressure
→ The driver section is filled with driver gas which is held at a relatively high pressure due to the compressing action of the piston. The gas in the driven section is called driven gas (test gas).

Working :-

→ The driver gas is compressed by pushing the piston hard into the driver tube until the diaphragm ruptures.
→ Due to rupture of diaphragm the driver gas moves to the driven section & pushes the driven gas towards the far downstream end. Here there is sudden increase of pressure, temp & density of driven section near the downstream end.
→ This generates a moving shock wave that traverses the length of the driven section.

→ The propagating primary shock wave is reflected back from the downstream end. After this reflection, the test gas further undergo compression produces the secondary shock waves, which increases the pressure & temp to still higher values.

→ This state of high values of pressure & temp is sustained at the downstream end until an expansion waves reflected from the downstream end of the driver tube arrives there & nullifies the compression partially.

→ The period over which the extreme temp & pressure conditions at the downstream end is sustained, is typically in the order of milliseconds.

→ The pressure rise caused by the primary and also the reflected shock waves are sensed as signals by the sensors S_1 & S_2 respectively and are recorded in a digital cathode ray oscilloscope.

→ From the recording in the CRO, the shock arrival times are found out by the associated time base calculations. Using the data so obtained, Mach number, pressure and temperature can be calculated.

Module - 4

3] (c) $P = 20\,mW$, $\lambda = 780\,nm = 780 \times 10^{-9}\,m$, $t = 10\,ns$

$N = ?$ $\qquad t = 10 \times 10^{-9}\,s$

$$\Delta E = \frac{hc}{\lambda} = \frac{6.625 \times 10^{-34} \times 3 \times 10^{8}}{780 \times 10^{-9}}$$

$$\boxed{\Delta E = 2.54 \times 10^{-19}\,J}$$

E = power x duration

$E = 20 \times 10^{-3} \times 10 \times 10^{-9}$

$$\boxed{E = 2 \times 10^{-10}\,J}$$

$$\Rightarrow N = \frac{E}{\Delta E}$$

$$N = \frac{2 \times 10^{-10}}{2.54 \times 10^{-19}}$$

$$\boxed{N = 787.4 \times 10^{6}}\ \text{photon/pulse}$$

$$\boxed{N = 0.787 \times 10^{9}}\ \text{photons/pulse}$$

Energy density :-

Consider two energy levels E_1 & E_2 of a system of atoms with N_1 and N_2 as population of energy levels respectively. Let U_ν be the energy density of incident beam of radiation of frequency ν. Let us consider the absorption and two emission process.

(1) Induced absorption

It is the absorption of an incident photon by system as a result of which the system is elevated from a lower energy state to a higher state.

$$\text{Rate of absorption} = B_{12} N_1 U_\nu \quad \text{——①}$$

B_{12} → proportionality constant called Einstein co-efficient

(2) Spontaneous emission

The emission of a photon by the transition of a system from a higher energy state to a lower energy state without the aid of an external energy

$$\text{Rate of spontaneous emission} = A_{21} N_2 \quad \text{——②}$$

A_{21} → proportionality constant

(3) Stimulated emission

It is the emission of a photon by a system under the influence of a passing photon of just the right energy due to which the system transits from a higher energy state to a lower energy state.

$$\text{Rate of stimulated emission} = B_{21} N_2 U_\nu \quad \text{——③}$$

B_{21} → proportionality constant

At thermal equilibrium,

Rate of absorption = [Rate of spontaneous emission + Rate of stimulated emission]

$$B_{12} N_1 U_\nu = A_{21} N_2 + B_{21} N_2 U_\nu$$

$$U_\nu [B_{12} N_1 - B_{21} N_2] = A_{21} N_2$$

$$U_\nu = \frac{A_{21} N_2}{[B_{12} N_1 - B_{21} N_2]}$$

$$\Rightarrow U_\nu = \frac{A_{21}}{B_{21}} \left[\frac{N_2}{\left(\frac{B_{12}}{B_{21}}\right) N_1 - N_2} \right] \quad \{\because \text{by dividing } N_2\}$$

$$U_\nu = \frac{A_{21}}{B_{21}} \left[\frac{1}{\left(\frac{B_{12} N_1}{B_{21} N_2}\right) - 1} \right] \quad \text{——— (4)}$$

By Boltzmann's law,

$$N_2 = N_1 e^{-\left(\frac{E_2 - E_1}{KT}\right)} = N_1 e^{-h\nu/KT}$$

$$\Rightarrow N_1 / N_2 = e^{h\nu/KT}$$

eqn (4) becomes, $$U_\nu = \frac{A_{21}}{B_{21}} \left[\frac{1}{\left[\frac{B_{12}}{B_{21}} e^{\left(\frac{h\nu}{KT}\right)} - 1\right]} \right] \quad \text{——— (5)}$$

By Planck's law, $$U_\nu = \frac{8\pi h\nu^3}{c^3} \left[\frac{1}{\left[e^{\left(\frac{h\nu}{KT}\right)} - \right]} \right] \quad \text{——— (6)}$$

Comparing equations (5) and (6)

$$\frac{A_{21}}{B_{21}} = \frac{8\pi h\nu^3}{c^3} \quad \text{and} \quad \frac{B_{12}}{B_{21}} = 1 \quad \{ \text{i.e., } B_{12} = B_{21}$$

The probability of induced absorption is equal to the stimulated emission.

$\therefore A_{12}$ is written as 'A' & B_{12}, B_{21} written as 'B'

eqn (5) $\Rightarrow$ $$\boxed{U_\nu = \frac{A}{B} \left[\frac{1}{\left[e^{\left(\frac{h\nu}{KT}\right)} - 1\right]} \right]}$$

Above equation is the expression for energy density Hence proved

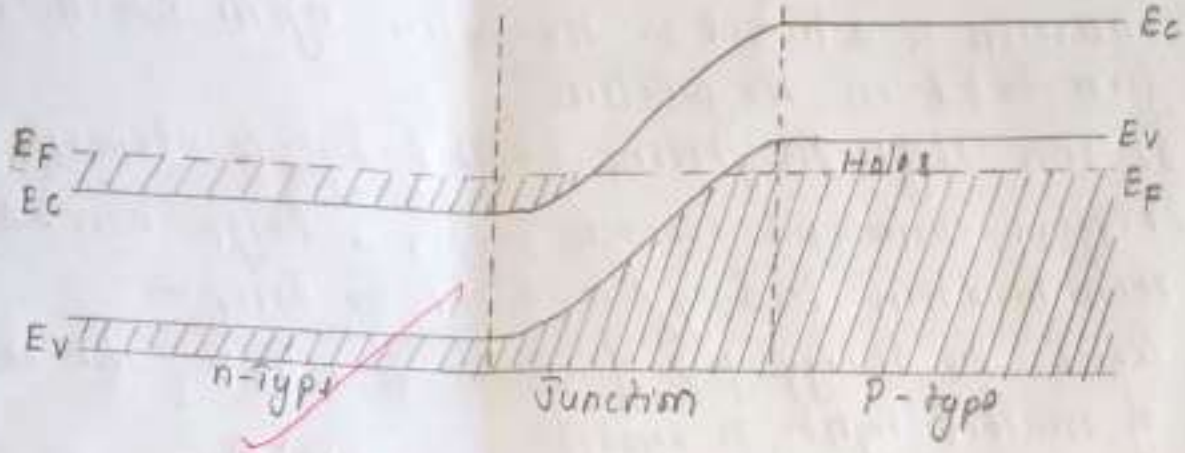
(b) Semiconductor lasers :-

Construction : Gallium - Arsenide laser is a single crystal of GaAs consists of heavily doped n-type & p-type. The diode is very small size with sides of the order of 1mm.

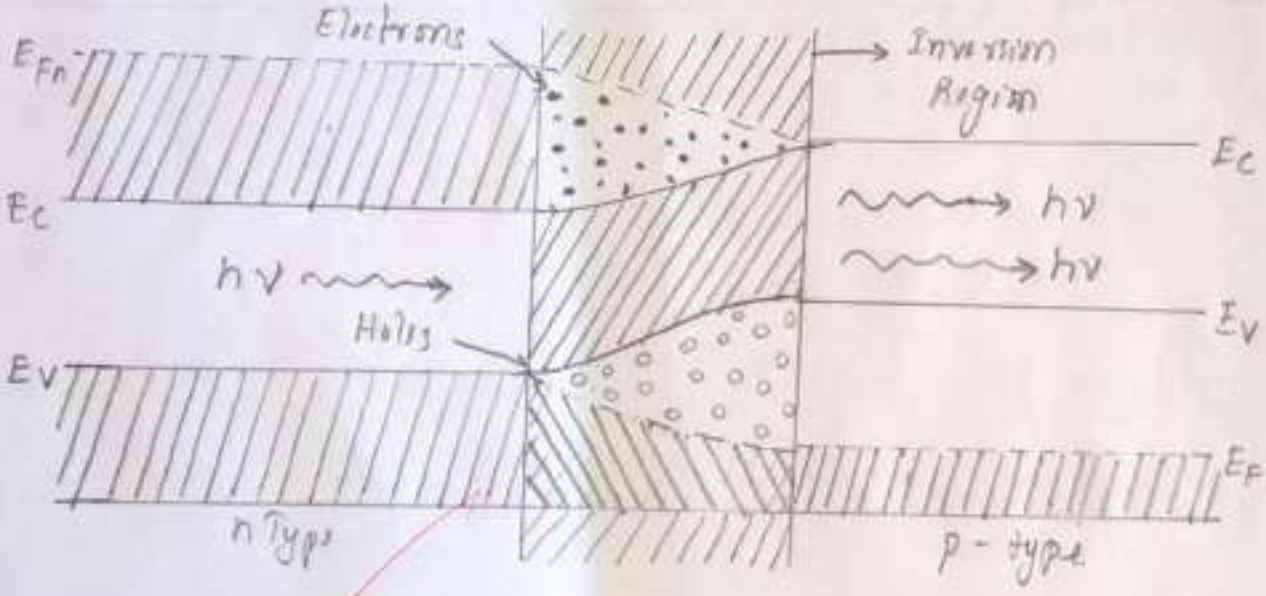
→ The width of the junction varies from 1–100 μm.

the top & bottom surfaces are metalized & ohmic contacts are provided for external connection. The front & rear faces are polished.

→ The polished faces functions as the resonant cavity. The other two faces are roughened to prevent lasing action in that direction.



[a]



[b]

Energy level diagram of semiconductor diode laser

Working :-

→ The energy band diagram of heavily doped pn junction is as shown. At thermal equilibrium the Fermi level is uniform.

→ Because of very high doping on n-side, the Fermi level is pushed to the conduction band & el-s occupy the portions of the conduction band that lies below the Fermi level & on p-side, the fermi lies within the valence band & hols occupy the portions of the valence band that lies above the Fermi level

→ A suitable forward bias is applied to overcome the potential barrier

As a result electrons from n-regions & holes from p-region injected into the junction

→ The current begins to flow following which there will be a region in junction in which the population inversion can be achieved.

→ When the current exeeds the threshold value, population inversion is achieved in the active region which is formulated in the junction.

→ At this stage the photons emitted by spontaneous emission triggers stimulated emission, over a large number of recombination leading to build up laser

→ Since the energy gap of GaAs is 1.4eV, the wavelength of emitted light is 8400 A°.

28/6/21

USN | 1 | D | B | | | | | | |

Wayanamac Education Trust ®

DON BOSCO INSTITUTE OF TECHNOLOGY

Kumbalagodu, Mysore Road, Bengaluru – 560074
www.dbit.co.inPh: +91-80-28437028/29/30 Fax:+91-80-28437031

Department of Physics

Internal Assessment Test-II

Course Name: Engineering Physics Course Code: 18PHY22 Date: 30-08-2021

Semester & Section: II Sem & Section F,G,H,J Max marks: 30 Time: 2.30 to 3.30 pm

Note: Answer any Two full questions, choosing only One full question from each Module.
Each full question carry maximum of 15 marks

Q NO.	Module-1 Questions	MARKS	CO	RBTL
	a) Set up time independent Schrodinger wave equation for a particle in one dimensional potential well of infinite height	6	4	RBTL-1,2
	b) Define Fermi factor. Explain how Fermi factor depends on temperature	5	4	RBTL-1,3
	c) Compute the de-Broglie wavelength for a neutron moving one tenth part the velocity of light. Given the mass of the neutron is 1.674×10^{-27} Kg	4	4	RBTL-3,5
	OR			
2	a) State Heisenberg's uncertainty principle. Using this principle prove that electron do not exist inside the nucleus.	6	4	RBTL-1,4
	b) Define Fermi Energy. Discuss two success of quantum free electron theory.	5	4	RBTL-1,3
	c) Calculate the probability of finding an electron at an energy level 0.02 eV above the Fermi level at 200 K.	4	4	RBTL-3,5
	Module-2 Questions			
3.	a) What is Hall Effect? Obtain the expression for Hall voltage in terms of Hall co-efficient.	6	5	RBTL-1,3
	b) Derive Clausius-Mossotti equation.	5	5	RBTL-1,2
	c) The electron and hole motilities of silicon are $0.14 m^2/Vs$ and $0.05 m^2/Vs$ respectively at a certain temperature. If the electron density is 1.5×10^{16} electrons/m^3 then Calculate the Resistivity	4	5	RBTL-3,5
	OR			
	a) Derive an expression for electrical conductivity of a intrinsic semiconductor	6	5	RBTL-3
	b) What is polarization? explain various types of polarization mechanisms in dielectrics.	5	5	RBTL-1,4
	c) If a NaCl crystal is subjected to an electric field of 1000 V/m and the resulting polarization is $4.3 \times 10^{-8} C/m^2$. Calculate the dielectric constant of NaCl	4	5	RBTL-3,5

Name & Signature of Course Instructor

Dr. Bhavyashri Shetty

Scrutinized by (Name & Signature)

1) Dr. Bhavyashri Shetty

2)

3) HOD- 02/09/21

DON BOSCO INSTITUTE OF TECHNOLOGY BANGALORE-74
DEPARTMENT OF PHYSICS
ACADEMIC YEAR: Dec-September 2020-2021

II INTERNAL TEST

Sub Title: Engineering Physics
Sem: II

Sub Code: 18PHY22
Max Marks: 30
Date:30-08-21

SCHEME & SOLUTION

Q. No	Solution	Marks Allotted
1 a.	$\lambda = \frac{h}{p}$ – de Broglie wavelength $\Psi = \psi e^{-i\omega t}$ $\frac{d^2\Psi}{dx^2} = e^{-i\omega t} \frac{d^2\psi}{dx^2}$. $\frac{d^2\Psi}{dt^2} = -e^{-i\omega t} \omega^2 \psi$ $\frac{1}{\lambda^2} = -\frac{1}{4\pi^2\psi} \frac{d^2\psi}{dx^2}$ $K.E = \frac{1}{2}mv^2 = -\frac{h^2}{8\pi^2 m} \frac{1}{\psi} \frac{d^2\psi}{dx^2}$ $\frac{d^2\psi}{dx^2} + \frac{8\pi^2 m}{h^2}(E-V)\psi = 0$	1M 1M 2M 2M.
1b.	definition of fermi factor $f(E) = \frac{1}{e^{E-E_f/kT}+1}$: f graph. (a) for $E < E_F$ at $T=0$, $f(E)=1$ (b) for $E > E_F$ at $T=0$, $f(E)=0$ (c) for $E = E_F$ at $T \geq 0$, $f(E) = 1/2$	1M 1M 1M 1M 1M

Q.No.	Solution	Marks Allotted
1C	data $v = \frac{1}{10}c = \frac{1}{10} \times 3\times10^8 = 3\times10^7$ m/s.	
	$m_n = 1.674\times10^{-27}$ kg.	
	formula: $\lambda = \frac{h}{p} = \frac{h}{mv}$	} 1M
	$= \frac{6.62\times10^{-34}}{1.674\times10^{-27}\times3\times10^7}$	} 2M
	$= 1.319\times10^{-14}$ m	} 1M
		4.
2a.	Statement of Heisenberg's uncertainty principle	1M
	$\Delta x \cdot \Delta p_x \geq \frac{h}{4\pi}$	
	Energy of a particle $E = \frac{p^2}{2m}$	1M
	$\Delta p_x \geq \frac{h}{4\pi\Delta x}$	} 2M
	diameter of the nucleus $\simeq \Delta x \simeq 10^{-14}$ m	
	$\Delta p_x \geq 0.5\times10^{-20}$ Ns	1M
	$E \geq 1.372\times10^{-11}$ J	1M
	≥ 85 MeV	
2b	Dependence of σ on Temperature	
	$\sigma = \frac{ne^2\lambda}{m^*v_f}$	1M
	$\lambda \propto \frac{1}{T^2}$	1M

Q.No.	Solution	Marks Allotted
	$\sigma^2 \propto T$	
	$\lambda \propto \frac{1}{T}$ and $\sigma \propto \frac{1}{T}$	1M
(b)	Electrical conductivity & electron concentration	
	$\frac{\lambda}{v_f}$ for Cu is 3.72 times that of Al m^* for Al is 1.08 times that of Cu or for Al is 2.13 times higher than Cu.	2M.
(2c)	Data.	
	$E - E_f = 0.02\,eV$ $= 0.02 \times 1.6 \times 10^{-19} J$	
	$T = 200\,K.$	
	$f(E) = \frac{1}{e^{\left(\frac{E-E_f}{KT}\right)}+1} = \frac{1}{e^{\frac{0.02\times10^{-19}\times1.6}{1.38\times10^{-23}\times200}}+1}$	2M
	$= \frac{1}{7.188+1} = 0.24$	2M.
	Section – 2	
3(a)	defn of Hall effect.	1M
	diagram : -	1M
	$F_L = -BeV$ – Lorentz force	1M
	$F_H = -eE_H$ – upward force	
	$E_H = Bv$ & $E_H = \frac{V_H}{d}$	

Q.No.	Solution	Marks Allotted
	$J = \frac{I}{wd}$ & $\rho v = \frac{1}{wd}$	1M
	$\rho = \frac{BI}{V_H w}$, $R_H = \frac{1}{\rho}$	1M
	$\boxed{V_H = R_H \left(\frac{BI}{w}\right)}$	
(3b)	Clausius - Mossotti Eqn.	
	$P = N\alpha_e E_i$	1M
	$E_i = \frac{P}{N\alpha_e}$	1M
	$P = \varepsilon_0 (\varepsilon_r - 1) E$	
	$E = \frac{P}{\varepsilon_0(\varepsilon_r - 1)}$	1M
	$\frac{P}{N\alpha_e} = \frac{1}{\varepsilon_0}\left[\frac{1}{(\varepsilon_r - 1)} + \frac{1}{3}\right]$	1M
	$\boxed{\left(\frac{\varepsilon_r - 1}{\varepsilon_r + 2}\right) = \frac{N\alpha_e}{3\varepsilon_0}}$	1M
(3c)	$\mu_e = 0.14\ m^2/Vs$	
	$\mu_n = 0.05\ m^2/Vs$	
	$n_i = 1.5 \times 10^{16}$ electrons$/m^3$	
	find, $\rho = ?$ $\quad \rho_i = \frac{1}{n_i e[\mu_e + \mu_n]}$	1M
	$= \frac{1}{1.5 \times 10^{16} \times 1.6 \times 10^{-19}[0.14 + 0.05]}$	2M
	$= \frac{1}{4.56 \times 10^{-4}}$	
	$= 2192.98$	1M

Q.No.	Solution	Marks Allotted
4a	Current $I = N_e e A v$	1M
	current density $J = \frac{I}{A} = N_e e v$	1M
	electron mobility $\mu_e = v/E$	1M
	$J = \sigma_e E$ $\cdot \sigma_e = N_e e \mu_e$.	1M
	$\sigma_n = N_h e \mu_h$	
	$\sigma = \sigma_e + \sigma_n$	1M
	$= e [N_e \mu_e + N_h \mu_h]$	1M
	$\sigma_i = n_i e (\mu_h + \mu_e)$	1M
4b)	difinition of Polarization Electronic polarization Ionic polarization Orientational Polarization	4M.
4c)	Data $E = 1000 V/m$ $P = 4.2 \times 10^{-8} c/m^3$ $\varepsilon_r = ?$	
	$P = \varepsilon_0 (\varepsilon_r - 1) E$	1M
	$(\varepsilon_r - 1) = \frac{P}{\varepsilon_0 E}$	2M
	$= \frac{4.3 \times 10^{-8}}{8.856 \times 10^{-12} \times 10^3}$	
	$\varepsilon_r - 1 = 4.855$	
	$\varepsilon_r = 5.855$	1M

Signature of Course coordinator

Name : Nishkal S. Bhoosthilly
class : 1SE 'g'
Subject : Physics
USN : 1DB20IS099

30/30

INTERNALS - 2

(2) (a) It states that " It is impossible to measure simultaneously both the position and momentum of a particle accurately, If we make an effort to measure very accurately the position of a particle it leads to large uncertainity in the measurement of momentum and vice versa".

Impossibility of existence of e^- in nucleus.

The energy of particle is,

$$E = \frac{1}{2} mv^2 = \frac{p^2}{2m} \rightarrow (1)$$

Heisenberg's uncertainity principle states

$$\Delta x \cdot \Delta p_x \geq \frac{h}{4\pi} \rightarrow (2)$$

The diameter of the nucleus is of order 10^{-14} m
If an e^- is to exist in side the nucleus, the uncertainity in its position Δx must not exceed 10^{-14} m

i.e. $\Delta x \leq 10^{-14}$ m

The minimum uncertainity in 'p' :-

$$(\Delta p_x)_{min} \geq \frac{h}{4\pi (\Delta x)_{min}} \geq \frac{6.63 \times 10^{-3}}{4\pi \times 10^{-14}} \geq 0.5 \times 10^{-20} \text{ kg m/s}$$

By considering min uncertainity in the mome. of e⁻

i.e. $(\Delta p_x)_{min} \geq 0.5 \times 10^{-20}$ kg.m/s $= p$ → (3)

Consider equn (1)

$$E = \frac{p^2}{2m_0} = \frac{(0.5 \times 10^{-20})^2}{2 \times 9.1 \times 10^{-31}} = 1.373 \times 10^{-11} = 85 \text{ MeV}$$

(b) where, $m_0 = 9.11 \times 10^{-31}$ kg

If an electron exists in the nucleus its energy must be ≥ 85 MeV. It is experimently measured that the β particles ejected from the nucleus during β decay have energies of abt 3 to 4 MeV. This shows that e⁻ cannot exist in nucleus

(2)(b) Fermi Energy – The energy of e⁻ corresponding to the highest occupied energy level at absolute 0°K is called fermi energy.

(x) Temperature depends on electrical conductivity – experimentally electron conduction $\sigma_{temp} \propto \frac{1}{T}$

$$\sigma_{QFT} = \frac{n e^2 \lambda}{m^* v_f} \rightarrow (1)$$

where m^* → effective mave of e⁻

According to quantum free e⁻ theory E_F & v_f are independent of temperature the dependence of σ & T is as follows.

conduction electrons are scattered by the vibrating ions of the lattice. As temperature increases the vibration across sectional areas (πr^2) increases & hence mean free path decreases.

The mean free path of e^- is

$$\lambda \propto \frac{1}{\pi r^2}$$

Consider energy of vibration body $\propto$ to r^2 & the energy of ions is due to thermal energy.

Thermal energy $\propto$ temp't'

$$r^2 \propto T$$

$$\rho \propto \frac{1}{T}$$ substitute in (1)

(b) Hence $\sigma_{QFT} \propto \frac{1}{T}$

$\sigma_{QFT} \propto \frac{1}{T}$ is correctly explained by this theory.

(¥) Electrical conductivity & e^- concentration :-

Al & Ga which have 3 free electrons per atom have lower electrical conductivity than that of Cu & Ag, which have only one free electron per atom.

as per quantum free electron the σ is

$$\sigma_{QFT} = \frac{ne^2\lambda}{m^* v_f}$$

i.e. $\sigma \propto (n)$ & $\sigma \propto (\lambda / v_f)$

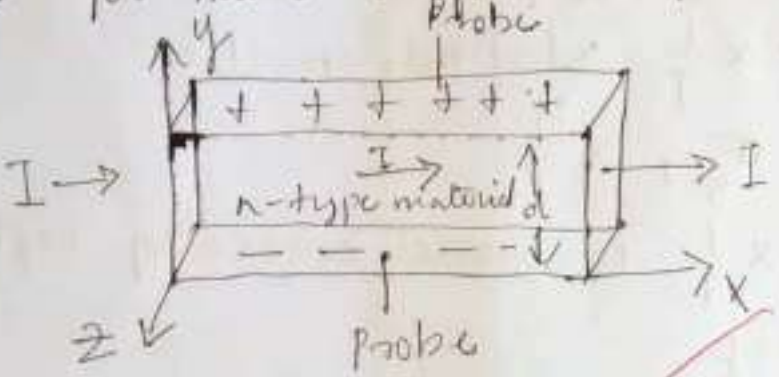
The value of [n] Al = 2.13 times increases than that of Cu.

But value of (λ / r_F) for Cu is about 3.73 times increases than that of Al.

(3)(a)

When a current carrying conductor is subjected to external magnetic field ⊥ar to the direction of current. The electric field induced is across the material in a direction ⊥ar to both the the magnetic field & direction of current flow.

Expression for Hall's coefficient & voltage :-



Consider a □ar n-type semiconductor material in which I flows in +ve x-direction Let magnetic field (B) applied along z axis ∴ the e⁻ experience the lorentz force (F_L) along -ve y- direction given by.

$$F_L = -BeV \rightarrow (1)$$

The e⁻ exerts an ↑ force F_H due to the Hall field and is given by,

$$F_H = -eE_H \rightarrow (2)$$

Equating ① & ②

$$-eEH = -BeV_d$$

$$E_H = BV_d \rightarrow ③$$

If 'd' is distance b/w ↑ & ↓ surface then

$$E_H = \frac{V_H}{d}$$

$$V_H = E_H d, \rightarrow \text{from } ③$$

$$V_H = BV_d d \rightarrow ④$$

The I density $J = \frac{I}{A} = ne V_d = pV_d \rightarrow ⑤$

$\therefore p = ne$

$$J = \frac{I}{A} = \frac{I}{wd} \rightarrow ⑥$$

Equating ⑤ & ⑥ $\quad pV_d = \frac{I}{wd}$

substitute ⑦ in ④

$$V_H = \frac{BdI}{pwd} = \frac{BI}{pw}$$

$$\therefore p = \frac{BI}{V_H w}$$

expression for Hall coefficient

$$R_H = \frac{1}{p} = \frac{1}{ne} \rightarrow ⑨$$

expression for Hall voltage

$$V_H = \frac{R_H BI}{w}.$$

(3)(b) Consider a solid dielectric material with dielectric constant E_0. If 'n' is the number of atoms / unit volume. & 'μ' is the dipole moment of atoms. (6)

$\therefore$ the dipole moment / unit vol $= N\mu \rightarrow (1)$

The field experienced by the atom is an internal field i.e $E_i \propto e$ is the electronic polarizability of the atoms (α)

Then dipole moment / unit volume

$$= N \alpha_e E_i$$

$$\therefore \mu = \alpha_e E_i \rightarrow (2)$$

(5)

μ / unit volume = polarization (P)

$$\therefore P = N\alpha_e E_i$$

$$E_i = \frac{P}{N\alpha_e} \rightarrow (3)$$

we have, $P = \varepsilon_0 (E_0 - 1) E$

$$E = \frac{P}{\varepsilon_0 (E_0 - 1)} \rightarrow (4)$$

Substitute (3) & (4) in $E_i = E + \frac{P}{3\varepsilon_0}$

$$\frac{P}{N\alpha_e} = \frac{P}{\varepsilon_0 (E_0 - 1)} + \frac{P}{3\varepsilon_0}$$

$$\frac{E_0 - 1}{E_0 + 2} = \frac{N\alpha_e}{3\varepsilon_0}$$

This is called Clausius - Mossati Equation

(3) $\mu_e = 0.14\ m^2/Vs$

$\mu_h = 0.05\ m^2/Vs$

$n_i = 1.5 \times 10^{16}\ /m^3$

$f = ?$

$\sigma = n_i e [\mu_e + \mu_h]$

$\sigma = 1.5 \times 10^{16} \times 1.6 \times 10^{-14} [0.14 + 0.05]$

(4) $\sigma = 4.56 \times 10^{-4}$

$f = \frac{1}{\sigma} = 2.192\ k\Omega m$

$f = 2.192\ k\Omega m$

(2) (C) $f(E) = \frac{1}{e^{E-E_f/kt} + 1}$

$(E - E_f) = +0.02eV$

$= 3.2 \times 10^{-21} J$

(4) $= \frac{1}{e^{1.159} + 1}$

$f(E) = 0.258$

$f(E) = 23.87\%$

USN | 1 | D | B | | | | | | | |

Wayanamac Education Trust ®

DON BOSCO INSTITUTE OF TECHNOLOGY

Kumbalagodu, Mysore Road, Bengaluru - 560074
www.dbit.co.in Ph:+91-80-28437028/29/30 Fax:+91-80-28437031

Department of Physics

Internal Assessment Test-III

Course Name: Engineering Physics Course Code: 18PHY22 Date: 28/06/22

Semester & Section: II Sem & Section F,G,H,J Max marks: 30 Time: 2:30 to 3:30 pm

Note: Answer any Two full questions, choosing only One full question from each Module.
Each full question carry maximum of 15 marks

Q. No	Section I	MARKS	CO	RBTL
1	a) Derive the relation between Y, n,σ where the symbols have their usual meaning.	6	2	RBTL-1,2
	b) Explain different types of moduli of elasticity	5	2	RBTL-1,3
	c) Calculate the force required to produce an extension of 1mm in steel wire of length 2 meters and diameter 1mm. (Y for steel $Y = 2\times10^{10}$).	4	2	RBTL-3,5
	OR			
2	a) Describe a single cantilever and derive the expression for Young's modulus of the material of rectangular beam.	6	2	RBTL-1,4
	b) Explain the nature of elasticity with the help of stress strain diagram	5	2	RBTL-1,3
	c) Calculate the angular twist of a wire of length 0.3m and radius 0.2X10 m when a torque of $5X10^{-4}$Nm is applied. (Rigidity modulus is $8X10^{10}$Nm^{-2})	4	2	RBTL-3,5
	Section II			
3	a) Explain different types of optical fiber.	6	3	RBTL-1,3
	b) Explain the losses in Optical fibers with suitable diagrams	5	3	RBTL-1,2
	c) A step index optical fiber has a core index of 1.50 and the cladding index 1.409. If the core diameter is 80μm and the wavelength of the light source is 1.2μm, determine the number of modes present in the fiber.	4	3	RBTL-3,5
	OR			
4	a) Define numerical aperture. Derive the condition for propagation through optical fiber	6	3	RBTL-3
	b) Derive the expression for bending moment in terms of moment of inertia.	5	3	RBTL-1,4
	c) An optical fiber has a core material with refractive index 1.55 & its cladding refractive index is 1.50. The light is launched into it in air. Calculate its numerical aperture, the acceptance angle and also the fractional index change.	4	3	RBTL-3,5

Name & Signature of Course Instructor

Dr Bhavyashri Shetty
Bhavyashri

Scrutinized by (Name & Signature)

1) Bhavyashri (Dr Bhavyashri Shetty)
2) (Yashodha. B.R)
3) HOD 22/6/22

DON BOSCO INSTITUTE OF TECHNOLOGY BANGALORE-74
DEPARTMENT OF PHYSICS
ACADEMIC YEAR: Dec-September 2020-2021

III INTERNAL TEST

Begashab.

Sub Title: Engineering Physics
Sem: II

Sub Code: 18PHY22
Max Marks: 30
Date: 20-09-2021

SCHEME & SOLUTION

Q. No	Solution	Marks Allotted
	Section - I	
1 (a)	diagram with Explanation	(2)
	Total Extension = Longitudinal strain along diagonal DP + Lateral strain Dar to DP	(2)
	derivation till $Y = 2\eta(1+\sigma)$	(2)
1b.	3 types of modulli of Elasticity	
	(1) Young's modulus - defn & Formula	(2)
	(2) Rigidity modulus - "	(2)
	(3) Bulk modulus - "	(1)
(1c)	Data $l = 1mm = 1\times10^{-3}m$ $Y = 2\times10^{10} N/m^2$	
	$L = 2m$	
	$d = 1mm = r = \frac{d}{2} = \frac{1}{2} = 0.5mm$	
	$A = \pi r^2$	(2)
	$Y = \frac{FL}{Al}$	
	$F = \frac{YAl}{L} =$	(1)
	$= 7.855\ N$	(1)
2(a).	Single cantilever diagram with Explanation	(2)
	$Y = \frac{wL^3}{3I_0 l_g}$	(3)
	For Rectangular case $Y = \frac{4mgL^3}{bd^3 y_0}$	(1)

Q.No	Solution	Mark Allotted

2b Stress - strain diagram (2)

Hookes limit, yeild point

Plastic limit [3]

Breaking point

2c) $L = 0.3\ m$

$r = 0.2 \times 10^{-3}\ m$

$\tau = 5 \times 10^{-4}\ N/m$

$n = 8 \times 10^{10}\ N/m^2$

$\tau = C\theta$ (1)

$= \frac{\pi n R^4}{2L}\theta$ (1)

$\theta = \frac{2\tau L}{\pi n R^4} = \frac{2 \times 5 \times 10^{-4} \times 0.3}{3.1 \times 8 \times 10^{10} \times (0.2 \times 10^{-3})^4}$ (1)

$\theta = 0.75$ radian. (1)

Section - II

3(a) 3 types of optical fibres

(1) Single mode fibre (2)

(2) Step index multimode fibre (2)

(3) Graded index multimode fiber. (2)

Q No.	Solution	Marks Allotted

3b) Absorption loss — (1)

Scattering losses - diagram — (2)

Radiation losses - diagram — (2)

3c) $n_1 = 1.46$

$n_2 = 1.409$

$d = 80 \mu m$

$\lambda = 1.2 \mu m$

find no. of modes $= N = ?$

$$V = \frac{\pi d}{\lambda} \sqrt{n_1^2 - n_2^2}$$

$$= \frac{3.14 \times 80 \times 10^{-6} \times \sqrt{(1.46)^2 - (1.409)^2}}{1.2 \times 10^{-6}}$$

$$V = 80$$

$$N = \frac{V^2}{2} = \frac{6402}{2} = 3200$$

4a) definition of Numerical Aperture — (1)

diagram with Explanation — (2)

$$\sin\theta_0 = \frac{n_1 \sin\theta_1}{n_0} \quad (1)$$

$$\cos\theta_1 = \frac{n_2}{n_1} \quad (1)$$

$$\sin\theta_0 = \frac{\sqrt{n_1^2 - n_2^2}}{n_0}$$

Q.No.	Solution	Marks Allotted
	Condition for propagation $\sin\theta_i < \sin\theta_0$	(1)
4(b)	diagram for Bending moment derivation	(1)
	Explanation	(1)
	Expression for Bending moment change in length, original length linear strain $= \frac{r}{R}$ Longitudinal stress $= Y \times \frac{r}{R} = \frac{F}{a}$ moment of force $= F \times r = \frac{Y a r^2}{R}$	(2)
	for Rectangular beam : $BM = \frac{Y}{R} \frac{bd^3}{12}$ for a Circular beam $BM = \frac{Y}{R} \frac{\pi r^4}{4}$	(1)
4(c)	$n_1 = 1.55$ $n_2 = 1.50$ $NA = ?$ $\theta_0 = ?$ $\Delta = ?$ $N.A = \frac{\sqrt{n_1^2 - n_2^2}}{n_0}$ $NA = 0.39$ $\theta_0 = \sin^{-1}(NA)$ $\theta_0 = 23^\circ$	(2)
	$\Delta = \frac{n_1 - n_2}{n_1} = \frac{1.55 - 1.50}{1.55}$ $\Delta = 0.032$	(2)

Signature of Course coordinator

Scanned by CamScanner

NAME :- SUMATHI.P

PHYSICS

USN :- 1DB20IS144

III^RD INTERNAL ASSESSMENT

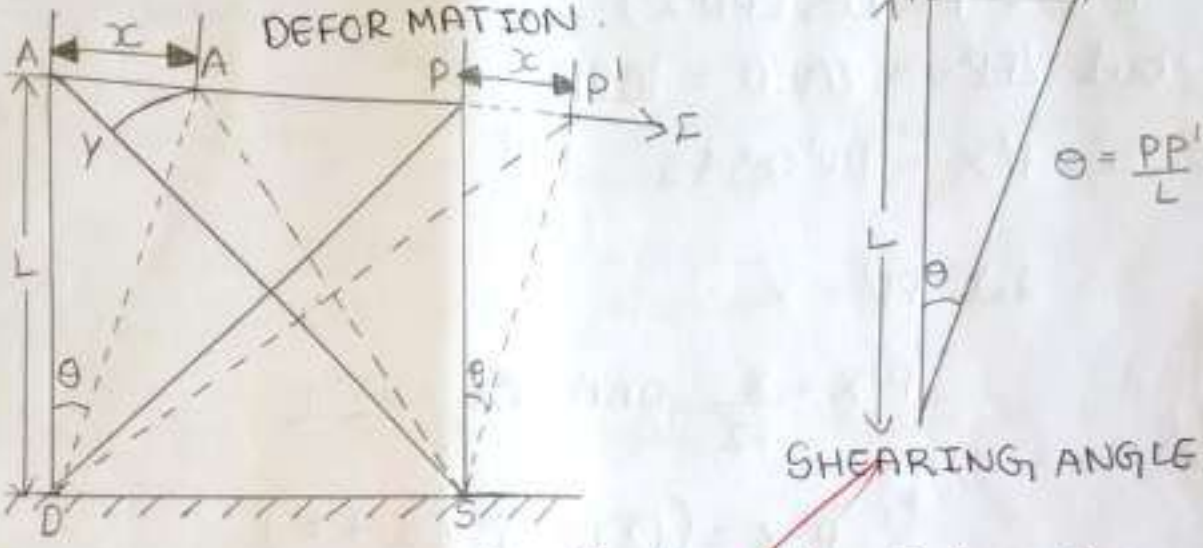
BRANCH :- ISE

30/30

Section - 01

P1 30/9/21

01 a] Derive the expression/relation between Y, n, σ where the symbols have their usual meaning.



Consider a cube with each of its sides of length L. under the action of tangential stress T.
Let tangential force F be applied to its upper face. It cause the plane of the faces perpendicular to the applied force F turn through an angle θ as a result diagonal AC undergoes contraction and diagonal DB' undergoes elongation of equal amount.

Now shearing strain occuring along AP can be treated as equivalent to a longitudinal strain, along DP' and an equal lateral strain along the diagonal A'S i.e., perpendicular to DP.
Let α and β be the longitudinal strain co-efficient and lateral strain co-efficients.

Since 'T' is the applied stress, therefore extension produced for the length DP due to tensile stress produce the longitudinal and lateral strain given by

Longitudinal strain = T. DP. α

& Lateral strain = T. DP. β

∴ Total extension = Longitudinal strain along DP + Lateral strain perpendicular to DP

$\therefore P'X = DP.T.(\alpha+\beta)$

$P'X = PP' \cos(PP'X)$

but $\angle PP'X = \angle AP'D = \angle APD = 45°$

$\therefore P'X = PP' \cos 45° = \frac{PP'}{\sqrt{2}}$

Let $PP' = X$

16

$P'X = \frac{X}{\sqrt{2}}$ and $DP = \sqrt{2}L$

$\therefore P'X = (\sqrt{2}L).T.(\alpha+\beta)$

Rearranging the terms

$(\sqrt{2}L)T(\alpha+\beta) = \frac{X}{\sqrt{2}}$

$\frac{1}{2}\frac{1}{(\alpha+\beta)} = \frac{TL}{X} = \frac{T}{(X/L)} = \frac{T}{\theta} = \eta$

$\therefore \eta = \frac{1}{2(\alpha+\beta)}$

$= \frac{1}{2\alpha(1+\beta/\alpha)}$

$\eta = \frac{1/\alpha}{2(1+\sigma)}$ $(\because \sigma = \beta/\alpha)$

$$\eta = \frac{Y}{2(1+\sigma)} \quad \text{or} \quad Y = 2\eta(1+\sigma)$$

Relation between Y and α

Consider a cube of unit side subjected to unit tension along one side.

Let α be the elongation per unit tension along the direction of the force

$$\therefore \text{Stress} = \frac{\text{Force}}{\text{Area}} = 1$$

$$\text{Linear strain} = \frac{\text{change in length}}{\text{original length}} = \frac{\alpha}{1} = \alpha$$

$$Y = \frac{\text{Normal stress}}{\text{Longitudinal strain}} = \frac{1}{\alpha}$$

(b) Explain the types of moduli of elasticity.

a) Young's modulus (Y) :-

The ratio of longitudinal stress to linear strain within elastic limit is called the co-efficient of direct elasticity or Young's modulus and is denoted by Y

If F is the force applied normally, to a cross-sectional area a, then the stress is F/a.

If L is the original length.

x is change in length due to the applied force.

then strain is given by $\frac{x}{L}$

$$Y = \frac{\text{Normal stress}}{\text{Longitudinal strain}} = \frac{F/a}{x/L} = \frac{FL}{xa} \text{ N/m}^2$$

⑥ Bulk modulus (K):-

The ratio of normal stress or pressure to the volume strain without change in shape of the body within the elastic limits is called bulk modulus

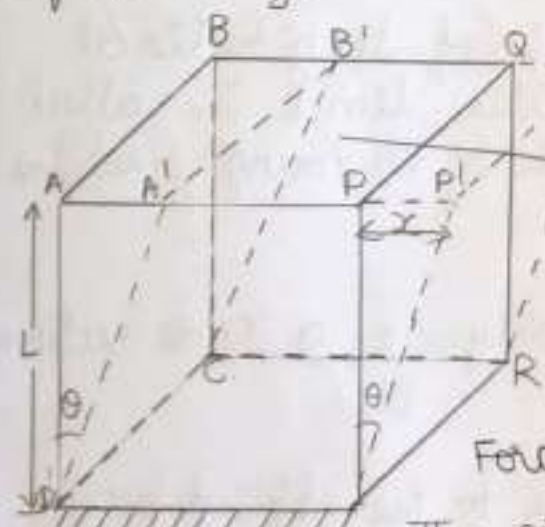
If F is the force applied uniformly and normally on a surface area 'a' the stress or pressure is 'F/a' or P and if 'v' is the change in volume produced in a original volume, the strain is given by 'v/V' and

$$\therefore K = \frac{\text{Normal stress}}{\text{Volume strain}} = \frac{F/a}{v/V} = \frac{FV}{av} = \frac{PV}{v} \text{ N/m}^2.$$

(5) Bulk modulus is referred to as incompressibility and hence its reciprocal is called compressibility

⑦ Modulus of Rigidity

In this case, while there is a change in the shape of the body, there is no change in the volume. It takes place by the movement of contiguous layers of the body, one over the other



Deformation of a Parallelopiped

Q' that is the planes of the two faces ABCD and PQRS can be said to have turned through an angle θ. This angle θ is called the angle of shear or shearing strain

Tangential stress is equal to the Force F divided by area 'a' of the face ABCD

The rigidity modulus is the defined as the tangential stress to the shearing strain.

$$\text{Tangential stress} = \frac{F}{a} \qquad \theta = PP'/PS = \frac{x}{L}$$

$$\text{Rigidity modulus } \eta = \frac{\text{tangential stress}}{\text{shearing strain}} = \frac{F/a}{\theta} = \frac{F/a}{x/L} = \frac{FL}{ax} \text{ N/m}^2$$

3 Calculate the force required to produce an extension of 1mm in steel wire of length 2 meters and diameter 1mm (Y for steel $Y = 2\times10^{11}$)

Given:- $l = 1mm = 1\times10^{-3}m$

$L = 2m$

$d = 1mm \Rightarrow r = \frac{d}{2} = \frac{1mm}{2} = 0.5mm$

$Y = 2\times10^{11} Nm^{-2}$

$F = ?$

(4)

$F = \frac{FL}{Al}$ $\qquad A = Ar^2$

$\Rightarrow F = \frac{YAl}{L}$

$= \frac{2\times10^{11}\times3.14\times(0.5\times10^{-3})^2\times1\times10^{-3}}{2}$

$\boxed{F = 78.5N}$

Section II

04 @. Define numerical aperture. Derive the condition for propogation through optical fibres.

→ Numerical aperture :- It indicates the ability of the optical fiber to accept light i.e the ligth gathering capability of the fiber. The sign of the acceptance is called numerical aperture.

Consider a light ray AO incident at an angle θ_0 enters into the fiber.

Let θ_1 be the angle of refraction for the ray OB.

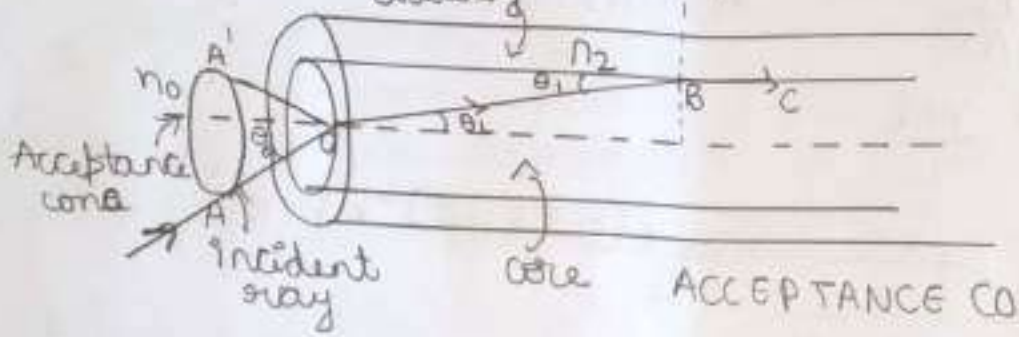
The refracted ray OB incident at an critical angle $(90^\circ - \theta_1)$ at B grazes the interface between core and cladding along BC.

If the angle of incidence is greater than critical angle, it undergoes total internal reflection. θ_0 is called the waveguide acceptance angle and $\sin\theta_0$ is called the numerical aperture.

Let n_0, n_1 and n_2 be the refractive index of the medium, core and cladding respectively.

From Snell's law,

$$n_0 \sin\theta_0 = n_1 \sin\theta_1 \longrightarrow (1)$$



At B the angle of incidence is $(90-\theta_1)$

From Snell's law

$$n_1 \sin(90-\theta_1) = n_2 \sin 90$$

$$n_1 \cos\theta_1 = n_2$$

$$\cos\theta_1 = \frac{n_2}{n_1} \longrightarrow (2)$$

From Eq^n (1) $\sin\theta_0 = \frac{n_1}{n_0}\sin\theta_1$

$$= \frac{n_1}{n_0}\sqrt{1-\cos^2\theta_1} \longrightarrow (3)$$

Using Eq^n (2) in (3)

$$\sin\theta_0 = \frac{n_1}{n_0}\sqrt{1-\frac{n_2^2}{n_1^2}}$$

$$= \frac{\sqrt{n_1^2 - n_2^2}}{n_0} \longrightarrow (4)$$

The surrounding medium is air, $n_0 = 1$

$$\sin\theta_0 = \sqrt{n_1^2 - n_2^2}$$

$\sin\theta_i \rightarrow$ numerical aperture

$$N.A = \sqrt{n_1^2 - n_2^2}$$

∴ For any of angle of incidence equal to θ_i equal to or less than θ_0, the incident ray is able to propogate. $\theta_i < \theta_0$

$$\sin\theta_i < \sin\theta_0$$

$$\sin\theta_i < \sqrt{n_1^2 - n_2^2}$$

$\sin\theta_i < N.A$ is the condition for propogation

(b) What is attenuation in an optical fiber? Discuss the various loss factors in optical fiber communication

→ Attenuation is the loss of optical power as light signal travels through a fiber. It is expressed in decible / kilometer [db/Km].

$$\alpha = -\frac{10}{L}\log_{10}\left(\frac{P_{out}}{P_{in}}\right) \text{ dB/Km}$$

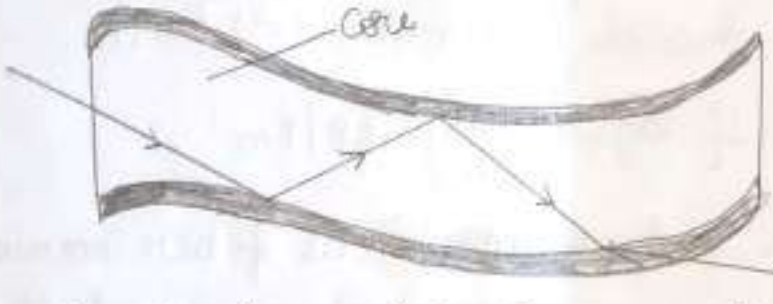
The various loss factors in optical fiber communication are -

1. Absorption loss :- Absorption of phons by impurities like metal ions such as iron, chromium, cobalt and copper in the silica glass of which the fibre is made of. During signal processing photons interact with electrons of impurity atoms. The atoms are excited and de-excite by emitting photons of different wavelength. Hence it is a loss of energy. The other impurity such as hydroxyl ion (OH) causes significant absorption loss.

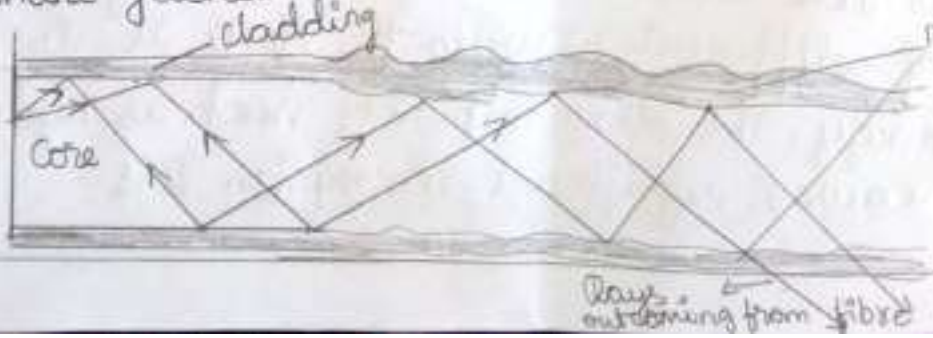
2. Scattering loss :- when the wavelength of the photon is comparable to the size of the particle then the scattering takes place known as Rayleigh scattering. This is because of the non uniformity in manufacturing, the refractive index of the material changes leads to scattering of light when light enters such non-uniform regions. It is inversely proportional to the fourth power of wavelength.

3. Radiation loss :- Radiation losses occur due to macroscopic bends and microscopic bends.

* Macroscopic bends :- All optical fibers are having critical radius of curvature provided by the manufacturer. If the fiber is bent below that specification of radius of curvature.



* Microscopic bends :- optical power loss in optical fibers is due to non-uniformity of the optical fibers when they are laid. Non-uniformity is due to manufacturing defects and also lateral pressure built up on fiber. The defect due to non uniformity can be overcome by introducing optical fiber inside a good strengthen polyurethane jacket.



© An optical fiber has a core material with refractive index 1.55 & its cladding refractive index is 1.50 The light is transmitted into it in air. Calculate its numerical aperture, the acceptance angle and also find the fractional index change.

Solution :-

$n_1 = 1.5$

$n_2 = 1.55$

NA = ?

θ_0 = ?

$$NA = \sqrt{n_1^2 - n_2^2}$$

$$= \sqrt{(1.5)^2 - (1.55)^2}$$

$$= 0.365$$

$$NA = \sin\theta_0$$

$$\theta_0 = \sin^{-1}(NA)$$

$$\theta_0 = 21.39^\circ$$

$$n_1 \sin(90 - \theta_0) = n_2 \sin 90^\circ$$

$$n_1 \cos\theta_1 = n_2$$

$$\theta_1 = \cos^{-1}\left(\frac{n_2}{n_1}\right)$$

$$\theta_1 = 14.07^\circ$$

Acceptance angle = $90 - \theta_1 = 75.9^\circ$

WAYANAMAC EDUCATION TRUST (R)

DON BOSCO INSTITUTE OF TECHNOLOGY

KUMBALAGODU, MYSORE ROAD, BENGALURU – 560074

LABORATORY INTERNAL ASSESSMENT TEST RECORD

5

Name: Rakshith S

USN / Roll No: 1DB20IS114

Subject: Physics laboratory Subject Code: 18PhyL26

Branch: ISE Semester: 2 Section: 'G'

Parameter for evaluation	Max Marks	Marks Obtained
Write up & Procedure	15 8	
Conduction & Result	70 35	
Viva – Voce	15 7	50
Total Marks	**100** 50	
Scale down mark		

Signature of the Student

16/16

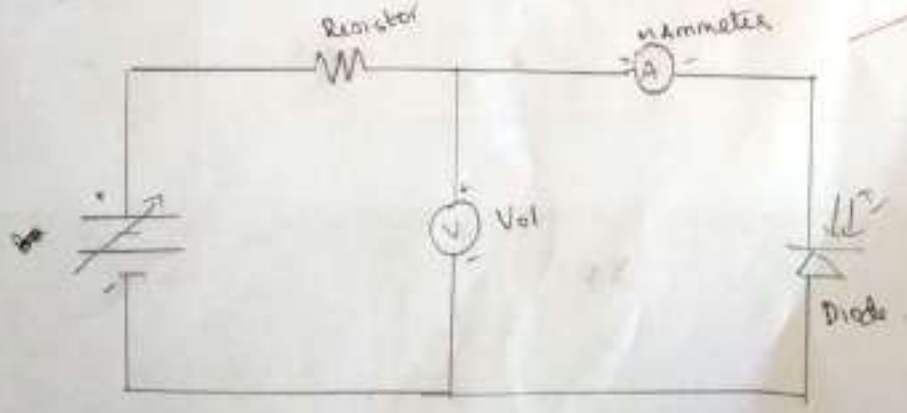
Signature of Faculty

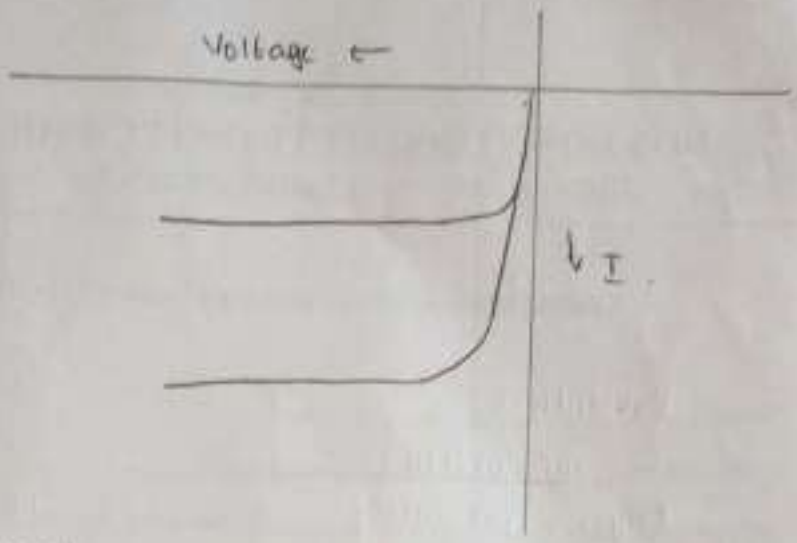
Experimental Write Up:

(5) Photo diode characteristics.

AIM: To plot the V-I characteristics graph of photo diode with variation in the light source.

APPARATUS: Photo diode, voltmeter, milliammeter, Power supply, Resistor.

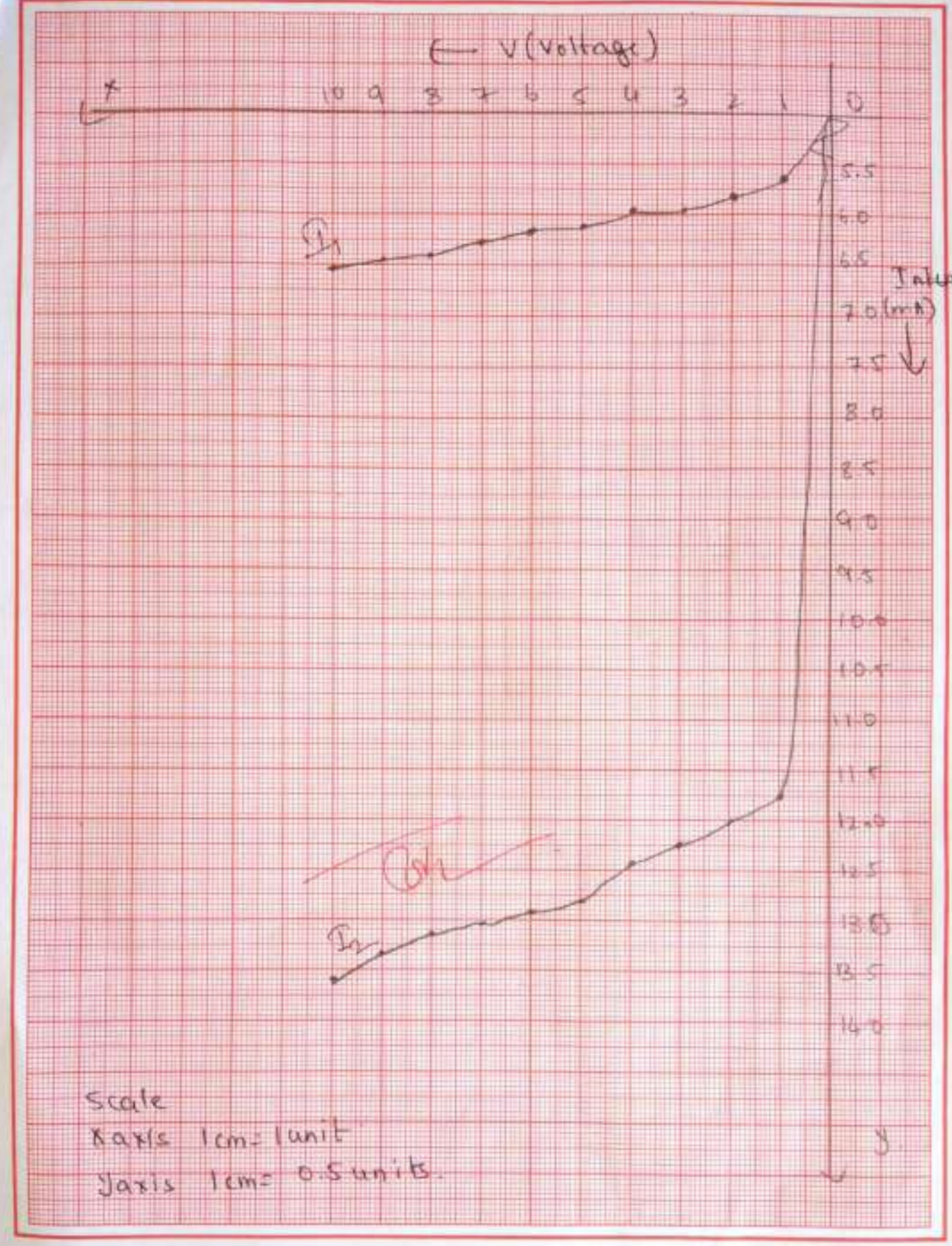




TABULAR COLUMN:

Voltage (V)	Intensity of I_1 (mA)	Intensity of I_2 (mA)
1	5.66	11.78
2	5.88	12.02
3	5.94	12.23
4	5.96	12.43
5	6.12	12.64
6	6.19	12.85
7	6.26	13.07
8	6.37	13.24
9	6.42	13.35
10	6.52	13.64

DATE : ☐☐☐☐☐☐☐☐ Batch No.....



DON BOSCO INSTITUTE OF TECHNOLOGY

(Approved by AICTE-New Delhi, NBA, Accredited courses, affiliated to VTU, Belgaum)
BENGALURU-560074

Laboratory Certificate

This is to certify that Mr. / Ms. SAHANA. M.K has satisfactorily completed the course of experiments in practical Enginuring physics Lab prescribed by the VTU university II nd Sem B.E course in the Laboratory of this college in the year 2020-2021

Signature of the Head of the Department

Date: 28/9/21

Signature of the Lecturer In-charge of the batch

Marks	
Maximum	Obtained
24	23.8
16	16.0
40	40

Name of the Candidate: SAHANA.M.K

USN: 1DB20CV018

Examination Centre: DBIT Bangalore

Date of Practical Examination:

INDEX

Name of the Student: Sahana MK Class: 'B' sec Year: II nd Sem

Expt. No	Date	Title of the Experiment	Page No.	Date of submission	Remarks
01	18/8/21	Dielectric constant	1-4	7/8/21	10
02	18/8/21	Determination of fermi energy	5-7	7/8/21	10
03	18/8/21	Spring constant	8-11	7/8/21	10
04	18/8/21	Series and parallel combination	12-15	7/8/21	10
05	7/9/21	η & I By Torsional pendulum	16-18	15/8/21	10
06	7/9/21	Photo diode characteristics	19-21	15/8/21	10
07	7/9/21	Laser diffraction	22-24	15/8/21	10
08	7/9/21	Acceptance angle & Numerical aperature of optical fiber	25-27	15/8/21	10
09	8/9/21	Newtons ring	28-30	15/8/21	
10	8/9/21	Magnetic field intensity at center of a circular coil carrying current	31	15/8/21	08
			31-32	15/8/21	
11	8/9/21	Young's modulus of a beam by single cantilever	33-35	15/8/21	10
12	8/9/21	Transistor Characteristics	36-40	15/8/21	10

20/10

REMARKS

TEACHER

DON BOSCO INSTITUTE OF TECHNOLOGY

Mysore Road, Bangalore-560074

DEPRATMENT OF PHYSICS

SEM II **Sub: Engineering Physics** **Sub code: 18PHY22**

Assignment I

1. Starting from Hookes' law, Derive the differential equation for SHM. Explain the Characteristics of SHM.
2. Define simple harmonic motion. Define force constant and mention its physical significance. Derive the expression for spring constant in series and parallel combination. Mention the expression for time period in series and parallel combination.
3. What are damped oscillations? Derive the expression for decaying amplitude and hence discuss the different cases of damping.
4. Discuss the theory of forced vibrations and hence obtain the expression for amplitude and phase of forced oscillations.
5. Write a short note on resonance, quality factor and Helmholtz resonator
6. What are shock waves? Mention the characteristics of shock wave.
7. What is Mach no. Classify shockwaves on the basis of Mach no. and mention example for each
8. With a neat diagram explain the construction and working of Reddy tube. Mention any four applications of Shock waves.
9. With a proper energy level diagram explain the construction and working of Semiconductor laser.
10. Obtain an expression for energy density of radiation under equilibrium in conditions in terms of Einstein's coefficients.
11. Describe the construction and working of CO_2 laser
12. State and explain laws of conservation of mass, energy and momentum.

HEAD OF DEPARTMENT
Physics
DBIT BANGALORE - 560 074

DON BOSCO INSTITUTE OF TECHNOLOGY

Mysore Road, Bangalore-560074

DEPRATMENT OF PHYSICS

SEM II **Sub:Engineering Physics** **Sub code: 18PHY22**

Assignment 2

1. State Heisenberg's uncertainty principle .Using uncertainty principle prove that an electron does not exit inside the nucleus.
2. Set up time independent Schrodinger wave equation for a particle in one dimension.
3. What is a wave function? What is the physical significance of probability density.
4. Give the physical significance of Heisenberg's uncertainty principle
5. Solve the Schrodinger's wave equation for allowed energy values in the case of particle in a box.
6. Give the assumptions of quantum free electron theory. Discuss two success of quantum free electron theory.
7. Give a brief account for Fermi-Dirac distribution theory. Obtain the expression for Fermi energy at 0 K.
8. Define Fermi factor. Explain the variation of Fermi factor with temperature.
9. Derive the expression for electrical conductivity of a semiconductor
10. What is Hall Effect? Obtain the expression for Hall voltage in terms of Hall co-efficient.
11. Derive the expression for energy gap of a semiconductor
12. Derive Clausius-Mossotti equation.

HEAD OF DEPARTMENT
PHYSICS
DBIT BANGALORE-560 074

DON BOSCO INSTITUTE OF TECHNOLOGY

Mysore Road, Bangalore-560074

DEPRATMENT OF PHYSICS

SEM II **Sub: Engineering Physics** **Sub code: 18PHY22**

Assignment 3

1. What is angle of acceptance and Numerical aperture? Derive an expression for Numerical aperture and acceptance angle of an optical fiber.
2. Explain the different types of optical fibers with neat diagrams
3. What is attenuation in an optical fiber? Discuss the various loss factors in optical fiber communication.
4. Explain point to point communication using an optical fiber.
5. Define fractional index change and V –number. Give their expressions.
6. Explain stress strain diagram? Explain in brief the factors affecting elastic property of a body.
7. Obtain the relation between shear strain, elongation strain and compression strain.
8. Define lateral strain, linear strain and Poisson's ratio. Obtain the expression for Poisson's ratio
9. State and explain Hookes' law. Define elastic and plastic limit.
10. Derive the relation between rigidity modulus (η), Young's modulus (Y) and Poisson's ratio (σ).
11. Derive the relation between bulk modulus (K), Young's modulus (Y) and Poisson's ratio.What are the limiting values of Poisson's ratio?
12. Define single cantilever. Derive the expression for young's modulus of a single cantilever.
13. What is neutral axis? Derive the expression for bending moment of a axis

Date: 3/06/2021

Engineering Physics

Name: Spandana N
Section: H
1DB20IS139

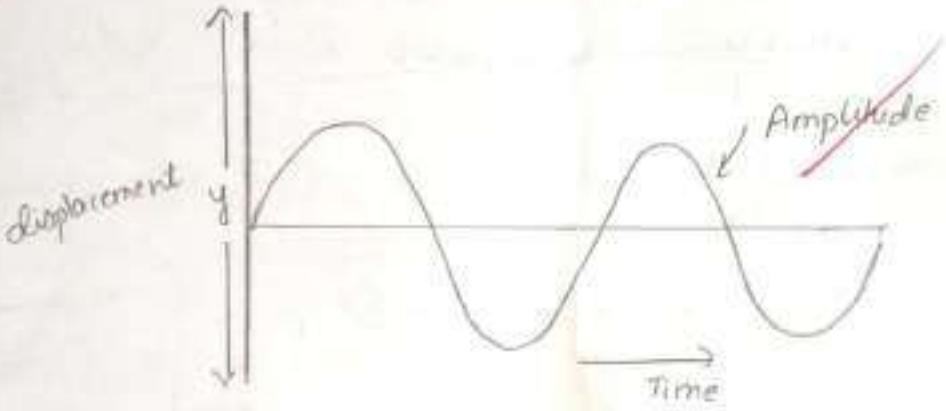
Assignment-1

1. Starting from Hooke's law, Derive the differential equation for SHM. Explain the characteristics of SHM.

A. "Hooke's law states that, the displacement is directly proportional to the deforming force or load."

$F \propto -x$

Differential equation of motion SHM:-



Consider a body of mass 'm' executing SHM. Let 'x' be the displacement of the body under the action of restoring force.

For an oscillating body, from Hooke's law

$$F = -kx \longrightarrow (1)$$

From Newton's second law of motion the force experienced by the body under motion is given by

$$F = ma = m\frac{d^2x}{dt^2} \longrightarrow (2)$$

Equating eqn (1) & (2)

$$m\frac{d^2x}{dt^2} = -kx$$

$$\frac{d^2x}{dt^2} = \frac{-k}{m}x$$

$$\frac{d^2x}{dt^2} + \frac{k}{m}x = 0 \quad \text{(OR)}$$

$$\frac{d^2x}{dt^2} + \omega^2 x = 0 \longrightarrow (3)$$

where $\omega = \sqrt{\frac{k}{m}}$ (angular freq)

This eqn is called eqn of motion of SHM. The solution of eqn (3) is given by

$$x = a \sin \omega t$$

Diff wrt 't' twice

$$dx = \omega a \cos \omega t$$

$$\frac{d^2x}{dt^2} = -\omega^2 a \sin \omega t$$

$$\frac{d^2x}{dt^2} = -\omega^2 x$$

$$\frac{d^2x}{dt^2} + \omega^2 x = 0 \longrightarrow (4)$$

Comparing eqn (3) & (4)

$$\omega^2 = \frac{k}{m}$$

The angular freq is $\omega = \sqrt{\frac{k}{\omega}}$

Characteristics of SHM :-

* It is particular type of periodic motion.
* There is a constant restoring force continously acting on the body.
* The acceleration developed during the motion is $\propto$ to displacement.
* Restoring force acts in a direction opposite to displacement i.e $F \propto -x$
* It is represented by sine or cosine functions i.e $x = a \sin \omega t$

2. Define SHM. Define force constant and mention its Physical Significance. Derive the expression for spring for spring constant in series and parallel combination Mention the expression for time period in series and parallel combination.

A. "An oscillary motion in which acceleration is directly proportional to the displacement and is directed towards the mean position is called SHM."

Force constant is "the magnitude of the applied force that produces unit extension in the spring, while it is loaded within the elastic limit".

Physical significance of force constant (k):-

Force constant is a measure of stiffens of the material. In case of spring it represents the amount of force required to stretch the spring by unit length.

Period of oscillation (τ):

$$T = 2\pi\sqrt{\frac{m}{k}} \quad sec$$

frequency of oscillation (ν):-

$$\nu = \frac{1}{T} \quad ; \quad \nu = \frac{1}{2\pi}\sqrt{\frac{k}{m}} \quad Hz$$

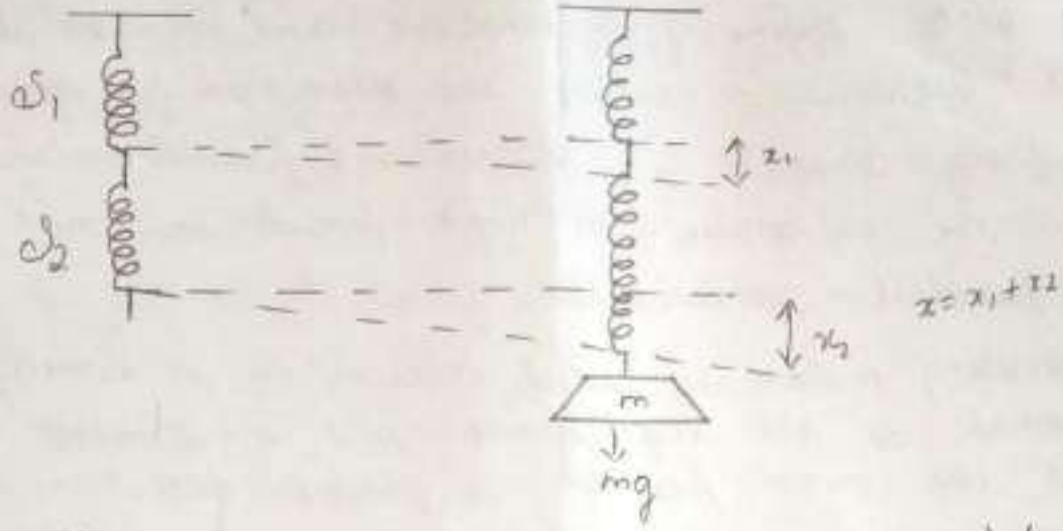
Angular freq (ω)

$$\omega = 2\pi\nu$$

$$\omega = \frac{2\pi}{T}$$

$$\omega = \sqrt{\frac{k}{m}} \quad radian/sec.$$

Expression for force constant (Spring constant) for series combination of springs:



Consider the spring 'S' with force constant 'k' suspended by mass 'm' and displaced through 'x' under the action of restoring force.

∴ from Hooke's law

$$F = -k_1 x_1$$

$$x_1 = \frac{-F}{k_1} \longrightarrow (1)$$

III rly for the spring S_2

$$F = -k_2 x_2$$

$$x_2 = \frac{-F}{k_2} \longrightarrow (2)$$

x_2 is the displacement of S_2, k_2 is the force constant of S_2 when the springs are connected in series, k_2 is the force constant and displaced through 'x' suspended by a same mass 'm'.

from Hooke's law = $F = -k_S x$

$$x = \frac{-F}{k_S} \longrightarrow (3)$$

The displacement for series combination is $x = x_1 + x_2 \longrightarrow (4)$

Substituting eqn (1) (2) (3) in (4)

$$\frac{-F}{k_S} = \frac{-F}{k_1} - \frac{F}{k_2}$$

$$\frac{1}{K_S} = \frac{1}{K_1} + \frac{1}{K_2}$$

$$\boxed{K_S = \frac{K_1 K_2}{K_1 + K_2}}$$

If 'n' number of springs connected in series, then

$$\boxed{\frac{1}{K_S} = \frac{1}{K_1} + \frac{1}{K_2} + \frac{1}{K_3} + \ldots\ldots + \frac{1}{K_n}}$$

$$\boxed{T = 2\pi\sqrt{\frac{m}{K_S}}}$$

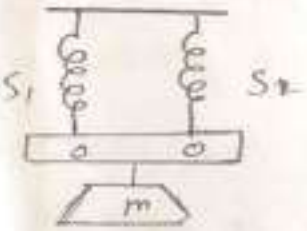
Expression for force constant for parallel combination of two springs:

Consider 2 springs S_1 and S_2 with spring constants K_1 and K_2 respectively. Let x_1 and x_2 be displacement of the individual springs when they suspended by a mass 'm'.

Hence $F_1 = -K_1 x_1 \longrightarrow (1)$

S_2, $F_2 = -K_2 x_2 \longrightarrow (2)$

where F_1 and F_2 are restoring force of the springs S_1 and S_2 respectively.



When the springs are connected in parallel and suspended by the same load, with force constant (K_p) and displacement through distance 'x' under the action of restoring force (F_p).

from Hooke's law $F_p = K_p x \longrightarrow (3)$

The restoring force (F_p) is equally shared by 2 springs when they are connected in parallel with

same extention

$x_1 = x_2 = x$

Then, $F_p = F_1 + F_2$

from ① ② & ③

$-k_p x = -k_1 x_1 - k_2 x_2$ (since $x_1 = x_2 = x$)

$$\boxed{K_p = k_1 + k_2}$$

This is the expression for equivalent force constant for springs in parallel combination of 'n' number of spring are connected in parallel then

$$\boxed{k_p = k_1 + k_2 + \ldots\ldots k_n}$$

Time period = $\boxed{T = 2\pi\sqrt{\frac{m}{K_p}}}$

3. What are damped oscillation? Derive the expression for decaying amplitude and hence discuss the different cases of damping.

"An oscillatory body oscillates such that its amplitude gradually decreases and comes to rest at equilibrium position in a finite interval of time. Due to the action of resistive force."

Theory of Damped Oscillations:-

Consider a body of mass 'm' executing damped oscillation in a resistive medium. The resistive force is proportional to velocity of the body and acts in opposite directions.

$\therefore$ Resistive force $\propto -\frac{dx}{dt}$

Resistive force $= -x\frac{dx}{dt}$ → ①

The restoring force acting on the body set for osullation is given by Restoring force $= -kx \rightarrow (2)$

∴ The resultant force acting on the body is, Resultant force = resistive force + restoring force.

Resultant force $= -\gamma \frac{dx}{dt} - kx \rightarrow (3)$

From Newton's second law of motion

Resultant force $= ma = m \frac{d^2x}{dt^2} \rightarrow (4)$

Equating eqn (3) & (4)

$$m \frac{d^2x}{dt^2} = -\frac{\gamma \cdot dx}{dt} - kx$$

$$\frac{d^2x}{dt^2} = -\frac{\gamma}{m} \cdot \frac{dx}{dt} - \frac{k}{m} \cdot x$$

$$\frac{d^2x}{dt^2} = -2b \cdot \frac{dx}{dt} - \omega^2 x$$

where $2b = \frac{\gamma}{m}$, $\omega = \sqrt{\frac{k}{m}}$

$$\boxed{\frac{d^2x}{dt^2} + 2b \cdot \frac{dx}{dt} + \omega^2 x = 0} \rightarrow (5)$$

The solution of eqn (5) is given by,

$$x = A \cdot e^{\alpha t} \rightarrow (6)$$

where A and α are constants

eqn (6) → diff wrt 't' we get

$$\frac{dx}{dt} = A \cdot \alpha \cdot e^{\alpha t} \rightarrow (7)$$

diff again

$$\frac{d^2x}{dt^2} = A \cdot \alpha e^{\alpha t} \rightarrow (8)$$

Substituting (6) (7) & (8) in (5)

$$\frac{d^2x}{dt^2} + 2b \cdot \frac{dx}{dt} + \omega^2 x = 0 \rightarrow (5)$$

$$A \cdot \alpha e^{\alpha t} + 2b \cdot A\alpha e^{\alpha t} + \omega^2 \cdot A \cdot e^{\alpha t} = 0$$

$$A e^{\alpha t} [\alpha^2 + 2\alpha b + \omega^2] = 0$$

$$x = [\alpha^2 + 2\alpha b + \omega^2] = 0$$

Considering $\alpha^2 + 2\alpha b + \omega^2 = 0$,

the standard solution of the above quadratic eqn is given by,

$$\alpha = -b \pm \sqrt{b^2 - \omega^2} \longrightarrow (9)$$

Substituting for α in eqn (6)

$$x = C \cdot e^{(-b+\sqrt{b^2-\omega^2})t} + D \cdot e^{(-b-\sqrt{b^2-\omega^2})t} \longrightarrow (10)$$

C & D are constants to be evaluated

we obtain, $C = \frac{x_0}{2}\left[1 + \frac{b}{\sqrt{b^2-\omega^2}}\right]$ & $D = \frac{x_0}{2}\left[1 - \frac{b}{\sqrt{b^2-\omega^2}}\right]$

eqn (10) $\Rightarrow$

$$x = \frac{x_0}{2}\left[1 + \frac{b}{\sqrt{b^2-\omega^2}}\right] e^{(-b+\sqrt{b^2-\omega^2})t} + \frac{x_0}{2}\left[1 - \frac{b}{\sqrt{b^2-\omega^2}}\right] e^{(-b-\sqrt{b^2-\omega^2})t}$$

To evaluate constants C & D in eqn

$$x = C \cdot e^{(-b+\sqrt{b^2-\omega^2})t} + D \cdot e^{(-b-\sqrt{b^2-\omega^2})t} \longrightarrow (10)$$

at $t = 0$ when $x = x_0$

eqn (10) $\Rightarrow x_0 = C + D \longrightarrow (11)$

At max displacement position, velocity is or $\frac{dx}{dt} = 0$

$\therefore$ diff of eqn (10) & equating it to 0

$$0 = \frac{dx}{dt} = C \cdot e^{(-b+\sqrt{b^2-\omega^2})t} (b + \sqrt{b^2-\omega^2}) + D \cdot (-b-\sqrt{b^2-\omega^2}) \cdot e^{(-b-\sqrt{b^2-\omega^2})t}$$

Since $t = 0$, when $\frac{dx}{dt} = 0$,

$(-b+\sqrt{b^2-\omega^2})\,C + (-b-\sqrt{b^2-\omega^2})\,D = 0$

$-b(C+D) + \sqrt{b^2-\omega^2}\,.\,(C-D) = 0$

$-bx_0 + \sqrt{b^2-\omega^2}\,(C-D) = 0$

$-bx_0 + \sqrt{b^2-\omega^2}\,(C-D) = 0$

$$\frac{bx_0}{\sqrt{b^2-\omega^2}} = (C-D) \longrightarrow (12)$$

Adding eqn (11) & (12)

$$2C = x_0\left[1+\frac{b}{\sqrt{b^2-\omega^2}}\right], \quad \text{or}$$

$$C = \frac{x_0}{2}\left[1+\frac{b}{\sqrt{b^2-\omega^2}}\right]$$

III^{ly} Subtracting eqn (11) & (12).

we get $2D = x_0\left[1-\frac{b}{\sqrt{b^2-\omega^2}}\right]$

$$D = \frac{x_0}{2}\left[1-\frac{b}{\sqrt{b^2-\omega^2}}\right]$$

eq^n (10)

$$x = \frac{x_0}{2}\left[1+\frac{b}{\sqrt{b^2-\omega^2}}\right] e^{(-b+\sqrt{b^2-\omega^2})t} + \frac{x_0}{2}\left[1-\frac{b}{\sqrt{b^2-\omega^2}}\right] e^{(-b-\sqrt{b^2-\omega^2})t}$$

The 3 possible domains of variations are:

Case i : Over damping

Osullations are said to be over damped or heavy damped when the system attains equilibrium state quite slowly without making osullations. The condition of over damping is $b^2 > \omega^2$

Case 2: Under damping

Oscillations are said to be under damped when the amplitude of oscillations decreases with respect to time

The condition for under damping is $b^2 < \omega^2$

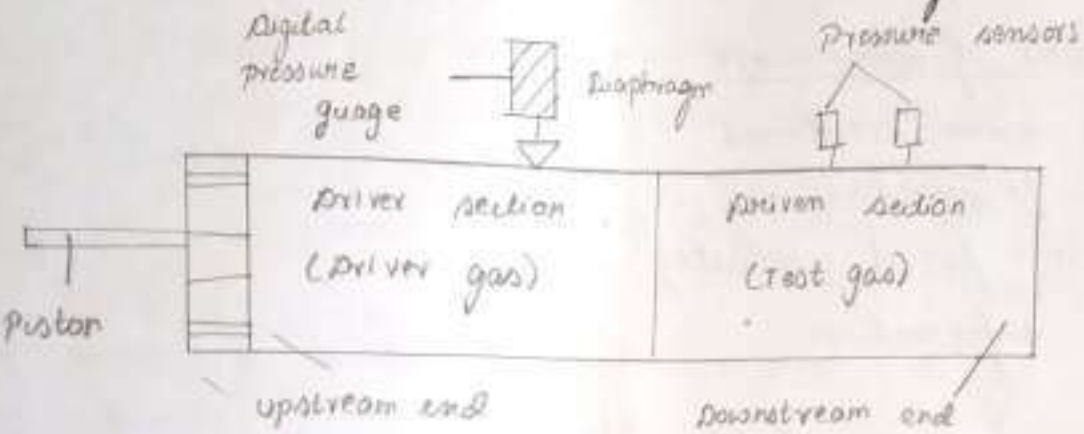
Case 3: Critical Damping

It is a condition such that the body comes to hault at Equilibrium position under the action of restoring and resistive force in a short interval of time without making any oscillation

The condition for critical damping when $b^2 = \omega^2$

9) With a neat diagram explain the construction and working of Reddy tube. Mention any four applications of shock waves.

Reddy tube is a hand operated shock tube capable of producing shock wave by using human energy. It is long cylindrical tube with two sections separated by a diaphragm. It's one end is fitted with a piston & the other end is closed or open to the surrounding.



Construction:

* Reddy tube consists of a cylindrical stainless steel tube of about 30mm dia & of length nearly 1m.
* It is divided into two sections one is driver section & the other is driven section separated by a thick aluminium or Mylar or paper diaphragm of thickness 0.1mm.
* Far end of driver tube is fitted with a piston & the far end of driven tube is closed.
* A digital pressure guage is mounted in the driver section near to the diaphragm.
* Two piezoelectric sensors S_1 and S_2 are mounted 70mm apart towards the closed end of the shock tube.
* A port is provided at the closed end of the driven section for filling the test gas to the required pressure.

Working:

* The driver gas is compressed using a piston due to which the diaphragm ruptures.
* The driver gas rushes into the driven section and pushes the driven gas towards the downstream end.

* This generates a moving shock wave in the driven section which increases the temperature & pressure instantaneously.
* The shock wave will get reflected back from the far end.
* Thus the driven gas gets further compression which takes the temperature and pressure to still higher values.
* This state will sustain (for m sec) until an expansion wave reflects from the upstream end of driver tube.

Applications of shock wave:

a) Kidney stone treatment
b) Wood preservation
c) Use in pencil industry
d) Cell information

4) State and explain laws of conservation of mass, energy and momentum.

Law of conservation of mass:

"The total mass of any isolated system remains unchanged & is independent of any chemical & physical changes that could occur within the system".

$$\rho_1 u_1 = \rho_2 u_2$$

Law of conservation of momentum:

"In a closed system, the total momentum remains constant".

$$P_1 + \rho_1 u_1^2 = P_2 + \rho_2 u_2^2$$

Law of conservation of energy:

"The total energy of a closed system remains constant & is independent of any changes occuring within the system"

$$h_1 + u_1^2/2 = h_2 + u_2^2/2$$

Discuss the theory of forced vibrations and hence obtain the expression for amplitude and phase of forced oscillations

"It is a steady state sustained vibrations of a body vibrating in a resistive medium under the action of external periodic force which acts independently of the restoring force."

Expression for amplitude and phase of the forced vibrations

Consider a body of mass 'm' executing vibrations in a damping medium under the application of external periodic force, $F \sin pt$.

If 'x' is the displacement of the body at any instant of time 't'.

The restoring force $= -kx \longrightarrow (1)$

where k = force constant

The resistive force acts opposite to velocity given by

Resistive force $= -\gamma \frac{dx}{dt} \longrightarrow (2)$

γ = damping constant

$\frac{dx}{dt}$ = velocity

The applied periodic force $= F \sin pt \longrightarrow (3)$

p = freq of external force

∴ the resultant force experienced by the body is given by

From equations (1) (2) & (3)

Resultant force $= -\gamma \frac{dx}{dt} - kx + F \sin pt \longrightarrow (4)$

From Newton second law

$$R = ma = m \frac{d^2x}{dt^2} \longrightarrow (5)$$

Equating (4) & (5)

$$m \frac{d^2x}{dt^2} = -\gamma \frac{dx}{dt} - kx + F \sin pt$$

÷ by m

$$\frac{d^2x}{dt^2} + \frac{r}{m}\frac{dx}{dt} + \frac{K}{m}x = \frac{F}{m}\sin pt \longrightarrow (6)$$

This is eqn of motion of forced oscillations

$$\frac{d^2x}{dt^2} + 2b\frac{dx}{dt} + \omega^2 x = \frac{F}{m}\sin pt \longrightarrow (7)$$

where $2b = \frac{r}{m}$

$$\omega = \sqrt{\frac{K}{m}}$$

The solution of eqn (7) is given by

$$x = a\sin(pt - \alpha)$$

Diff wrt 't' twice

$$\frac{dx}{dt} = pa\cos(pt - \alpha)$$

$$\frac{d^2x}{dt^2} = -p^2 a\sin(pt - \alpha)$$

Eqn (7) becomes

$$-p^2 a\sin(pt-\alpha) + 2b\,pa\cos(pt-\alpha) + \omega^2 a\sin(pt-\alpha) = \frac{F}{m}$$

$$\sin[(pt-\alpha)+\alpha]$$

$$= -p^2 a\sin(pt-\alpha) + 2bpa\cos(pt-\alpha) + \omega^2 a\sin(pt-\alpha) = \frac{F}{m}$$

$$[\sin(pt-\alpha)\cos\alpha + \cos(pt-\alpha)\sin\alpha]$$

Since $\sin(A+B) = \sin A\cos B + \cos A\sin B$

Equating the coefficient of $\cos(pt-\alpha)$ & $\sin(pt-\alpha)$ on b.s of eqn

$$2bpa = \frac{F}{m}\sin\alpha \longrightarrow (8)$$

$$a(\omega^2 - p^2) = \frac{F}{m}\cos\alpha \longrightarrow (9)$$

Squaring and adding eqn (8) & (9)

$$a^2[4b^2p^2 + (\omega^2 - p^2)^2] = \left(\frac{F}{m}\right)^2(\sin^2\alpha + \cos^2\alpha)$$

$$a^2 = \frac{\left(\frac{F}{m}\right)^2}{(4b^2p^2 + (\omega^2 - p^2)^2)}$$

$$\boxed{a = \frac{F/m}{\sqrt{4b^2p^2 + (\omega^2 - p^2)^2}}}$$

This is eqn for amplitude of forced oscillation

Equation (8) ÷ by (9)

$$\frac{2bp}{\omega^2 - p^2} = \frac{\sin\alpha}{\cos\alpha} = \tan\alpha$$

$$\tan\alpha = \left(\frac{2bp}{\omega^2 - p^2}\right)$$

$$\boxed{\alpha = \tan^{-1}\left(\frac{2bp}{\omega^2 - p^2}\right)}$$

5. Write a note on

i) Quality factor (Q):-

The amount of damping is described by the quantity called quality factor and is given by,

$$Q = \frac{\omega}{2b}, \quad \omega = \text{angular freq}$$

$$2b = \frac{\gamma}{m}, \quad \gamma \rightarrow \text{damping factor}$$

" Quality factor is the number of cycles required for the energy to fall off by a factor $e^{2\pi}$ ($\simeq 535$).

If Q value is more indicated the sustained oscillation overcoming the resistive forces

Q factor describes how much under damped is the oscillatory system.

ii) Resonance:

At resonance, the vibrating body will have the ability to receive completely the energy delivered by the periodic force. Hence amplitude of vibrations are max " when the freq of a periodic force acting on a vibrating body is equal to natural freq of vibrations of the body, the energy transfer from the periodic force to the body becomes max because of which the body vibrates with max amplitude", this phenomenon is called resonance.

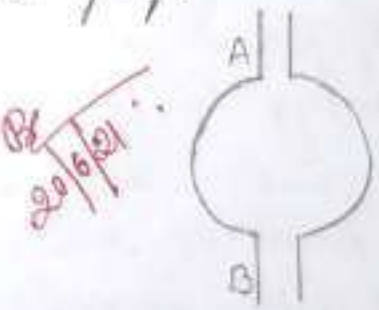
iii) Helmholz resonator:

It is an instrument used to detect (A) neck the presence of sound of a particular freq in the mixture of sound of diff freq.

It consist of narrow opening on opposite side (B) called neck and hallow vessel with hole (A) called mouth. The end (A) open for the entry of the air carrying the musical note and end (B) is held near the ear.

The air inside resonator vibrates with natural freq (ω) when the freq of music is equal to the natural freq of air enclosed in the resonator the amplitude of vib of air is max and a part of the air leaks through neck B.

Thus the resonator is said to resonate for the note of that particular freq.



Snehashree R
1DB20IS137 Engineering Physics 18PHY22

Assignment - II

1 Explain the failures of classical free electron theory.

A- Failures of classical free electron theory

classical free electron theory fails to explain the temperature dependence of conductivity and dependence of electrical conductivity on electon concentration

i) Temperature dependence of electrical conductivity

Experimentally, electrical conductivity σ is inversely proportional to the temperature T.

i.e $\sigma_{exp} \propto \frac{1}{T}$ — (1)

According to the assumptions of classical free electron theory or $\sigma \propto \frac{1}{\sqrt{(T)}}$ — (2)

from equations (1) & (2) it is clear that the experimental value is not agreeing with the theory

ii) Dependence of electrical conductivity on electon concentration

According to classical free electron theory

$\sigma = \frac{ne^2T}{m}$ i.e., $\sigma \propto n$. where n is the electon concentration.

Consider copper and aluminium. Their electrical conductivities are $5.88 \times 10^7 /\Omega m$ and $3.65 \times 10^7 /\Omega m$ The electron concentrations for copper and aluminium are $8.45 \times 10^{28}/m^3$ and $18.06 \times 10^{28}/m^3$. Hence the classical free electron theory fails to explain the dependence of σ on electron concentration

Experimental results:

Metal	Electon concentration (n)	Conductivity (σ)
copper	$8.45 \times 10^{28}/m^3$	$5.88 \times 10^7 /\Omega m$
Aluminium	$18.06 \times 10^{28}/m^3$	$3.65 \times 10^7 /\Omega m$

2. Explain the assumptions of quantum free electron theor and explain the success of QFET.

A

Assumptions of quantum free electron theory

→ The energy values of the conduction electron are quantized. The allowed energy values are realized in terr of a set of energy values

→ The distribution of electrons in the various allowed energy levels occur as per pauli's exclusion principle

→ The electrons travel with a constant potential inside the metal but confined within its boundaries

→ The attraction between the electrons and the lattice ions and the repulsion between the electrons themselves are ignored

Merits of Quantum free electron theory

Quantum free electron theory has successfully explained following observed experimental facts where as the classical free electron theory failed

i) Temperature depends on electrical conductivity

Experimentally electrical conductivity $\sigma_{expt} \propto \frac{1}{T}$

According to quantum free electron theory electrical conductivity is given by

$$\sigma_{QFT} = \frac{ne^2\lambda}{m^* V_F} \quad \text{— (1)}$$

Where m^* is called effective mass of an electron

According to quantum free electron theory E_F and V_F are independent of temperature. The dependence of λ & T is as follows

conduction electrons are scattered by the vibrating ions of the lattice as the temperature increases the vibrational cross sectional area (πr^2) increases and hence mean free path decreases

The mean free path of the electrons is given by $\lambda \propto \frac{1}{\pi r^2}$ where r is the amplitude of vibrations of lattice ions

considering the facts the energy of vibrating body is proportional to the square of amplitude and the energy of ions is due to the thermal energy

The thermal energy is proportional to the temperature T

We can write

$r^2 \propto T$

$\therefore \lambda \propto \frac{1}{T}$ substituting for λ in eqn (1)

Hence $\sigma_{QFT} \propto \frac{1}{T}$

Thus $\sigma_{QFT} \propto \frac{1}{T}$ is correctly explained by quantum free electron theory

ii) Electrical conductivity and electron concentration

Aluminium and gallium which have three free electrons per atom have lower electrical conductivity than that of copper and silver. which have only one free electron per atom

As per quantum free electron the electrical conductivity is

$$\sigma_{QFT} = \frac{ne^2\lambda}{m^* V_F}$$

i.e $\sigma \propto (n)$ and $\sigma \propto (\lambda / V_F)$

The value of (n) for aluminium is 2.13 times higher than that of copper. But the value of (λ/V_F) for copper is about 3.73 times higher than that of aluminium Thus the conductivity of copper exceeds that of aluminium

3. Define fermi factor. Explain the variation of Fermi fact with temperature.

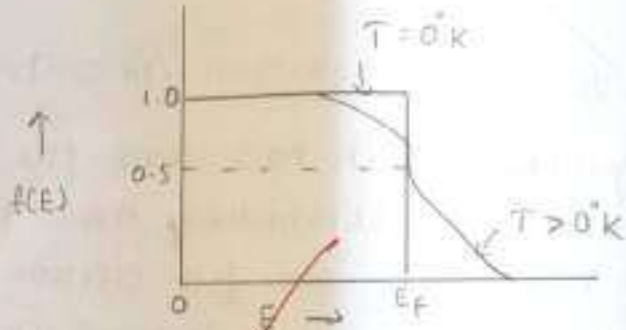
Fermi factor is the probability of occupation of a given energy state by the electrons in a material at thermal equilibrium.

The probality $f(E)$ that a given energy state with energy E is occupied by the electrons at a steady temperature T is given by

$$f(E) = \frac{1}{e^{\frac{(E-E_F)}{KT}} + 1}$$

Dependence of Fermi factor with temperature and energy

The dependence of Fermi factor on temperature and energy is as shown in the figure



Variation of f(E) with E

i) Probability of occupation for $E < E_F$ at $T = 0K$:

when $T = 0K$ and $E < E_F$

$$f(E) = \frac{1}{e^{-\infty} + 1} = \frac{1}{0+1} = 1$$

The probability of occupation of energy state by the conduction electrons below the fermi level is 100 %.

ii) Probability of Occupation for $E > E_F$ at $T = 0K$:

when $T = 0K$ and $E > E_F$

$$f(E) = \frac{1}{e^{\infty} + 1} = \frac{1}{\infty} = 0$$

The probability of occupation of energy state by the conduction electrons above the fermi level is 0%.

iii) The probability of occupation at ordinary temperature (for $E = E_f$ at $T > 0K$)

For $E = E_f$, $e^{(E-E_f)/kT} = e^0 = 1$

$$\therefore f(E) = \frac{1}{e^{(E-E_f)/kT} + 1} = \frac{1}{1+1} = \frac{1}{2}$$

The probability of occupation of energy state is 50%.

4. Define fermi energy. Derive an expression for Fermi energy of a metal at 0 K.

The energy of electrons corresponding to the highest occupied energy level at absolute 0°K is called Fermi energy

Expression for fermi energy at absolute zero temperature

According to Fermi-Dirac Statistics the distribution of electrons among the various allowed energy level is given by

$$N(E)dE = g(E)f(E)dE \quad \text{--- (1)}$$

The number of free electrons distributed / unit volume of the material up to Fermi level is given by

$$n = \int_0^{E_{F_0}} N(E)dE = \int_0^{E_{F_0}} g(E)f(E)dE$$

But for the energy levels from $E = 0$ to $E = E_{F_0}$

$f(E) = 1$ at $T = 0K$

$$n = \int_0^{E_{F_0}} g(E)dE$$

$g(E)$ is given by $g(E) = \frac{8\pi\sqrt{2}\,m^{3/2}}{h^3} E^{1/2}\,dE$

where 'm' is the mass of electron, 'h' is the planck's constant

$$n = \frac{8\pi\sqrt{2}\,m^{3/2}}{h^3}\int_0^{E_{F_0}} E^{1/2}\,dE = \frac{8\pi\sqrt{2}\,m^{3/2}}{h^3}\left[\frac{2}{3}E^{\frac{3}{2}}\right]_0^{E_{F_0}}$$

$$n = \frac{8\pi\sqrt{2}\,m^{3/2}}{h^3} \times \frac{2}{3}(E_{F_0})^{3/2} = \left[\frac{8\pi 2^{3/2} m^{3/2}}{h^3}\right]\left[\frac{\pi}{3}\right](E_{F_0})^{3/2}$$

$$(E_{F_0})^{3/2} = \frac{h^3}{(8m)^{3/2}}\left(\frac{3n}{\pi}\right)$$

$$E_{F_0} = \left(\frac{h^2}{8m}\right)\left(\frac{3n}{\pi}\right)^{2/3}$$

$$E_{F_0} = \left(\frac{h^2}{8m}\right)\left(\frac{3}{\pi}\right)^{2/3} n^{2/3} = 5.85 \times 10^{-38}\, n^{2/3}\ J$$

5. Derive the relation between Fermi energy and energy gap for an intrinsic Semiconductor.

A. For intrinsic semiconductor the number of electrons in conduction band is equal to the number of holes in valence band

i.e $N_e = N_h$

$$N_e = \frac{4\sqrt{2}}{h^3}(\pi m_e^* KT)^{3/2} e^{\frac{K_F - E_g}{KT}} = N_D = \frac{4\sqrt{2}}{h^3}(\pi m_h^* KT)^{3/2} e^{\frac{-E_F}{KT}}$$

$$\left((m_e^*)^{3/2}\right) e^{\frac{E_F - E_g}{KT}} = \left((m_h^*)^{3/2}\right) e^{\frac{-E_F}{KT}}$$

$$e^{\frac{2E_F - E_g}{KT}} = \left(\frac{m_e^*}{m_h^*}\right)^{3/2}$$

By taking natural log on both sides

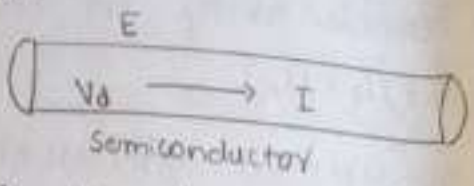
$$\frac{2E_F - E_g}{KT} = \frac{3}{2}\ln\left(\frac{m_e^*}{m_h^*}\right)$$

$$\text{or } E_F = \frac{3}{4}KT\ln\left(\frac{m_e^*}{m_h^*} + \frac{E_g}{2}\right)$$

Since $m_e^* = m_h^*$ and $\ln 1 = 0$

$$E_F = \frac{E_g}{2}$$

6 Derive an expression for conductivity of intrinsic semiconductor



Consider a semiconductor of area of cross section A, carrying a current I. Let V_d be the drift velocity of the charge carriers.

In the presence of electric field, both electrons and holes contribute to the conductivity of the semiconductor. Let us consider first the conductivity in a semiconductor is due to the flow of electrons only.

The current due to flow of electrons is $I = NeAV_d$ —(1)

$N = N_e$ = Concentration of charge carriers (electrons)

The current density of electrons is given by

$$J_e = N_e e V_d \quad —(2) \quad (J = I/A)$$

The quantity $\frac{V_d}{E}$ is a constant, specific for a particular type of charge carriers and is called mobility of charge carriers i.e., $\frac{V_d}{E} = \mu$

$V_d = \mu_e E$ in the above equation

$$J_e = N_e e \mu_e E \quad —(3)$$

But current density is given by $J_e = \sigma_e E$ —(4)

$$\sigma_e = \frac{I}{E}$$

$$\sigma_e = N_e e \mu_e \quad —(5)$$

eqn (5) represents the conductivity due to electrons in conduction band

Similarly the conductivity due holes in valance band is given by $\sigma_h = N_h e \mu_h$ — (6)

Total conductivity $\sigma = \sigma_e + \sigma_h = e(N_e \mu_e + N_h \mu_h)$

$$\sigma = e(N_e \mu_n + N_h \mu_h)$$

for intrinsic semiconductors $N_e = N_h = n_i$

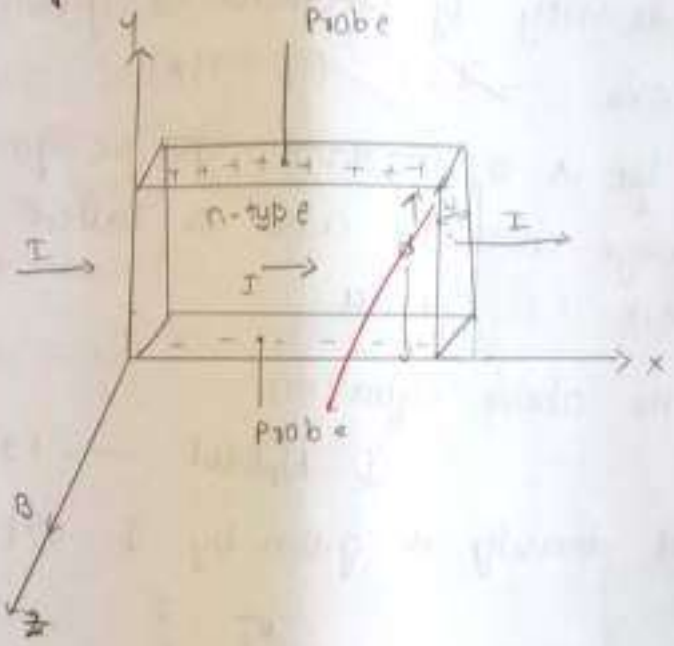
Hence the expression for conductivity in intrinsic semicond. is given by $\sigma = n_i e (\mu_e + \mu_h)$

7. What is Hall effect ? obtain an expression for Hall co-efficient and Hall voltage

A:

Hall effect - "When a current carrying conductor) Semiconduc Subjected to external magnetic field perpendicular to the direction of current. The electric field induced (produced) across the material in a direction perpendicular to both the magnetic field and direction of current flow". This phenomenon is called Hall Effect.

Expression for Hall Co efficient and Hall voltage



Consider a rectangular n-type semiconductor material in which current is flowing in +ve x-direction. Let the magnetic field (B) applied along z-direction. Therefore, the electrons experience the lorentz force (F_L) along -ve y-direction given by,

$$F_L = -BeV \quad \text{---(1)}$$

Therefore, the electrons density increases in lower surface and in the upper surface become positively charged due to deficiency of electrons. Hence the potential developed between two surfaces called Hall voltage, which produces an electric field E_H called Hall field (E_H)

The electrons exerts an upward force FH due to the Hall field and is given by,

$$F_H = -eE_H \quad \text{— (2)}$$

Equating equations (1) and (2)

$$-eE_H = -BeV_d$$

$$E_H = BV_d \quad \text{— (3)} \quad V_d \rightarrow \text{drift velocity}$$

if 'd' is the distance between upper and lower surface then

$$E_H = V_H/d$$

$$V_H = E_H d \quad \text{(from 3)}$$

$$V_H = BV_d d \quad \text{— (4)}$$

The current density $J = I/A = neV_d = \rho V_d \quad \text{— (5)}$

$$\therefore \rho = ne$$

for the given semiconductor, $J = I/A = \frac{1}{\omega d} \quad \text{— (6)}$

$\omega \rightarrow$ thickness of the material. therefore ($A = \omega d$)

equating 5 & 6 $\quad \rho V_d = \frac{1}{\omega d}$

$$V_d = \frac{1}{\rho \omega d} \quad \text{— (7)}$$

Substituting eqn (7) in (4)

$$V_H = \frac{BdI}{\rho \omega d} = \frac{BI}{\rho \omega} \quad \text{— (8)}$$

$$\rho = \frac{BI}{V_H \omega}$$

Expression for Hall co-efficient

Since, $E_H \propto JB$

$E_H = R_H JB$ ($R_H \rightarrow$ Hall co efficient)

$R_H = E_H / JB$ [from eqn (3) and (5)]

$R_H = BV_d / pV_dB = 1/p = 1/ne$

$R_H = 1/ne$ — (9)

The above expression represents Hall coefficient

Expression for Hall voltage

from (8) $V_H = \frac{BI}{pw} = \frac{RHBI}{w}$ (since, $R_H = \frac{1}{p} = \frac{1}{ne}$)

$V_H = R\frac{HBI}{w}$

The above expression represents Hall voltage

8. what are dielectrics? Describe polar and non polar dielectrics

Dielectrics materials - Dielectric materials are nothing but insulators which have the ability to get electrically polarised with the application of external electric field

Examples: Glass, rubber, plastic, mica

Polar dielectrics - In some dielectric materials, the effective centers of the negative and positive charges in the molecules do not coincide with each other and exhibit permanent dipoles in the absence of electric field are called polar dielectrics

Example: H_2O

Non-polar dielectrics: In some dielectrics materials, the effective centers of the negative and positive charges in the molecules do not coincide with each other and do not exhibit permanent dipoles in the

absence of electric field are called non polar dielectrics
Examples: paper, wood, glass

9. Describe different types of polarization mechanism.

Electronic polarization: The electronic polarisation occurs due to displacement of the positive and negative charges in a dielectric material with the application of external electric field. which leads to development of dipole moment. The electronic polarizability is given by,

$$\alpha_e = \epsilon_0 (\epsilon_r - 1) / N$$

Ionic polarization - This is kind of polarization occurs in some dielectric materials which have ionic bonds like NaCl. When ionic solids are subjected to an external electric field, the adjacent ions of opposite sign

Ionic polarisation: This is kind of polarization occurs in some dielectric materials which have ionic bonds like NaCl. when ionic solids are subjected to an external electric field. the adjacent ions of opposite sign undergoes displacement. The distance of separation between the ion pair depends on the location of atoms in the lattice results in the development of dipole moment

Oriental polarisation: This type of polarisation occurs in polar dielectric material.

The orientation of molecules is random in the absence of electric field, therefore net dipole moment in the material is zero. But under the influence of an applied electric field each dipole reorient along the field direction. Thus the material develops an electrical polarization. This type of polarization is temperature dependent. In polar dielectrics the orientation polarizability do is given by

$$\alpha_o = \mu^2 / 3KT$$

10. Derive clausius - Mossotti equation

Consider a solid dielectric material with dielectric constant Er. If 'n' is the number of atoms/ unit volume and μ is the dipole moment of the atoms in the material. Therefore, the dipole moment / unit volume = $N\mu$ — (1)

The field experienced by the atom is an internal field E and α_e is the electronic polarizability of the atoms.

Then dipole moment / unit volume = $N\alpha_e E_i$

The dipole moment $\mu = \alpha_e E_i$ — (2)

Dipole moment / unit volume is nothing but polarization (P)

$$P = N\alpha_e E_i$$

$$E_i = \frac{P}{N\alpha_e} \quad —(3)$$

we have $P = \epsilon_0(\epsilon_r - 1)E$

$$E = \frac{P}{\epsilon_0(\epsilon_r - 1)} \quad —(4)$$

The expression for internal field for 3D material is given by $E_i = E + \frac{P}{3\epsilon_0}$

Substituting (3) and (4) in above equation

$$\frac{P}{N\alpha_e} = \frac{P}{\epsilon_0(\epsilon_r - 1)} + \frac{P}{3\epsilon_0}$$

$$\frac{1}{N\alpha_e} = \frac{1}{\epsilon_0(\epsilon_r - 1)} + \frac{1}{3\epsilon_0} = \frac{1}{\epsilon_0}\left[\frac{1}{(\epsilon_r - 1)} + \frac{1}{3}\right]$$

$$\frac{\epsilon_r - 1}{\epsilon_r + 2} = \frac{N\alpha_e}{3\epsilon_0}$$

This is called clausius Mossotti equation

11. Define internal field. Derive an expression for the internal field in the case of solid dielectrics.

"The internal field is the electric field that acts at the site of any atom of a solid subjected to an external electric field and is the resultant of the applied field and the field due to all the surrounding dipoles".

In one dimension the internal field is given by

$$E_i = E_{applied} + E_{dipoles}$$

$$E_i = E + \left(\frac{\gamma}{\varepsilon_0}\right) P$$

where $\gamma \rightarrow$ internal field constant. $P \rightarrow$ polarization

For, 3D the internal field is called Lorentz field is given by

$$E_{Lorentz} = E + \frac{P}{3\varepsilon_0}$$

Quantum Mechanics

1. State Heisenberg's uncertainity principle. Using uncertainity principle prove that an electron does not exit inside the nucleus

"It is impossible to measure simultaneously both the position and momentum of a particle accurately. If we make an effort to measure very accurately the position of a particle, it leads to large uncertainity in the measurement of momentum and vice versa".

Impossibility of existence of electrons in the atomic nucleus

The energy of a particle is given by

$$E = \frac{1}{2} mv^2 = \frac{p^2}{2m} \quad -(1)$$

Heisenberg's uncertainty principle states that

$$\Delta x \, \Delta p_x \geq \frac{h}{4\pi} \quad -(2$$

The diameter of the nucleus is of the order 10^{-14} m. If an electron is to exist inside the nucleus, the uncertainty in its position Δx must not exceed 10^{-14} m

i.e $\Delta x \leq 10^{-14}$ m

The minimum uncertainity in the momentum

$$(\Delta P_x)_{min} \geq \frac{h}{4\pi(\Delta x)_{max}} \geq \frac{6.63\times10^{-34}}{4\pi\times10^{-14}} \geq 0.5\times10^{-20} \text{ kg m/s}$$

By considering minimum uncertainity in the momentum of the electron

i.e., $(\Delta P_x)_{min} \geq 0.5\times10^{-20}$ kg m/s $= p \rightarrow (2)$

Consider eqn (1)

$$E = \frac{p^2}{2m} = \frac{(0.5\times10^{-20})^2}{2\times9.1\times10^{-31}} = 1.373\times10^{-11} = 85 \text{ MeV}$$

where $m_0 = 9.11\times10^{-31}$ kg

If an electron exists in the nucleus its energy must be greater than or equal to 85 MeV It is experimentally measured that the beta particles ejected from the nucleus during beta decay have energies of about 3 to 4 MeV. This shows that electrons cannot exist in the nucleus.

2. set up time independent schrodinger wave equation for a particle in one dimension.

consider a particle of mass 'm' moving with velocity 'v'. The de Brogile wavelength 'λ' is

$$\lambda = \frac{h}{mv} = \frac{h}{p} \quad -(1)$$ where mv is the momentum of the particle

The wave eqn is

$$\psi = Ae^{i(Kx-\omega t)} \quad -(2)$$

where A is a constant and ω is the angular frequency of the wave

Differentiating equation (2) w.r.to 't' twice

$$\frac{d^2\psi}{dt^2} = -A\omega^2 e^{i(kx-\omega t)} = -\omega^2\psi \quad -(3)$$

The equation of a travelling wave is

$$\frac{d^2y}{dx^2} = \frac{1}{v^2}\frac{d^2y}{dt^2}$$

where 'y' is the displacement and 'v' is the velocity

Similarly for the de-Broglie wave associated with the particle

$$\frac{d^2\psi}{dx^2} = \frac{1}{v^2}\frac{d^2\psi}{dt^2} \quad -(4)$$

where ψ is the displacement at time 't'.

from eqns (3) & (4)

$$\frac{d^2\psi}{dx^2} = -\frac{\omega^2}{v^2}\psi$$

But $\omega = 2\pi\nu$ and $v = \nu\lambda$ o where 'ν' is the frequency and λ is the wavelength

$$\frac{d^2\psi}{dx^2} = -\frac{4\pi^2}{\lambda^2}\psi \quad \text{or} \quad \frac{1}{\lambda^2} = -\frac{1}{4\pi^2\psi}\frac{d^2\psi}{dx^2} \quad -(5)$$

$$K.E = \frac{1}{2}mv^2 = \frac{m^2v^2}{2m} = \frac{p^2}{2m} \quad -(6)$$

$$= \frac{h^2}{2m\lambda^2} \quad -(7)$$

Using eqn (5)

$$K.E = \frac{h^2}{2m}\left[-\frac{1}{4\pi^2\psi}\right]\frac{d^2\psi}{dx^2} = -\frac{h^2}{8\pi^2m\psi}\frac{d^2\psi}{dx^2} \quad -(8)$$

Total energy $E = K.E + P.E$

$$E = -\frac{h^2}{8\pi^2m\psi}\frac{d^2\psi}{dx^2} + V$$

$$E - V = -\frac{h^2}{8\pi^2m\psi}\frac{d^2\psi}{dx^2}$$

$$\frac{d^2\psi}{dx^2} = -\frac{8\pi^2 m}{h^2}(E-V)\psi$$

$$\frac{d^2\psi}{dx^2} + \frac{8\pi^2 m}{h^2}(E-V)\psi = 0$$

This is the time independent schrodinger wave equation.

3. What is wave function ? what is the physical significance of probability density ?

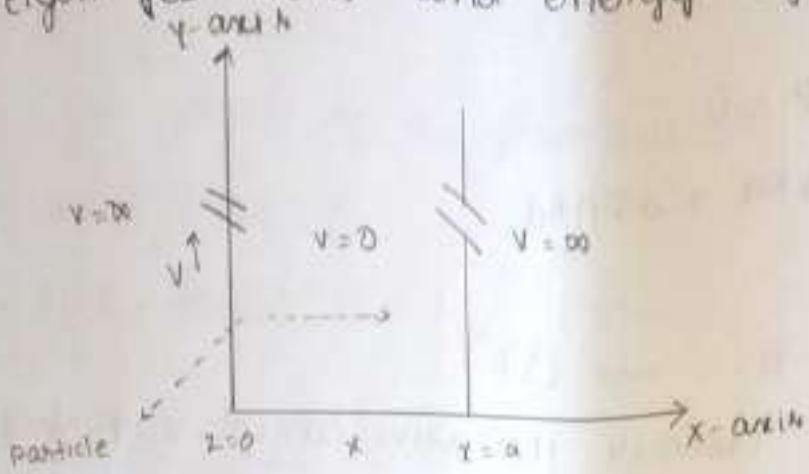
Wave function - A physical situation in quantum mechanics is represented by a function called wave function. It is denoted by 'ψ'. It accounts for the wave like properties of particles. wave function is obtained by solving schrodinger equation

Physical significance of wave equation

Probability density :

If ψ is the wave function associated with a particle, then $|\psi|^2$ is the probability of finding a particle in unit volume. If 'τ' is the volume in which the particle is present but where it is exactly present is not known. Then the probability of finding a particle in certain elemental volume $d\tau$ is given by $|\psi|^2 d\tau$. Thus $|\psi|^2$ is called probability density. The probability of finding an event is real and positive quantity. In the case of complex wave functions, the probability density is $|\psi|^2 = \psi^* \psi$ where ψ^* is complex conjugate of ψ.

4. Using Schrodinger's wave equation for a particle in one dimensional potential well of infinite height, find the Eigen functions and energy Eigen values



Consider a particle of a mass 'm' free to move in one dimension along positive x direction between $x=0$ to $x=a$ The potential energy outside this region is infinite and within the region is zero. The particle is in bound state such a configuration of potential in space is called infinite potential well. It is also called particle in a box The Schrodinger equation outside the well is

$$\frac{d^2\psi}{dx^2} + \frac{8\pi^2 m}{h^2}(E-\infty)\psi = 0 \quad \text{— (1)} \qquad \because V=\infty$$

for outside, the equation holds good if $\psi=0$ & $|\psi|^2=0$. That is particle cannot be found outside the well and also at the walls

The schrodinger's equation inside the well is

$$\frac{d^2\psi}{dx^2} + \frac{8\pi^2 m}{h^2} E\psi = 0 \quad \text{— (2)} \qquad \because V=0$$

Let $\frac{8\pi^2 m}{h^2} E = K^2$ — (3)

$$\frac{d^2\psi}{dx^2} + K^2\psi = 0$$

The solution of this equation is

$$\psi = C\cos Kx + D\sin Kx \quad \text{— (4)}$$

at $x = 0 \rightarrow \psi = 0$

$$0 = C\cos 0 + D\sin 0$$

$$\therefore C = 0$$

Also $x = a \rightarrow \psi = 0$

$$0 = C\cos ka + D\sin ka$$

But $C = 0$

$$\therefore D\sin ka = 0 \longrightarrow (5)$$

$D \neq 0$ (because the wave concept vanishes)

i.e $ka = n\pi$ where $n = 0, 1, 2, 3, \ldots$

$$k = \frac{n\pi}{a} \longrightarrow (6)$$

Sub eqn (5) and (6) in (4)

$$\psi_n = D\sin\frac{n\pi}{a}x \longrightarrow (7)$$

This gives permitted wave functions

The energy Eigen value is given by

Substitute equation (6) in (3)

$$\frac{8\pi^2 m}{h^2}E = K^2 = \frac{n^2\pi^2}{a^2}$$

$$E = \frac{n^2h^2}{8ma^2}$$

For $n = 0$ is not acceptable inside the well because $\psi_n = 0$ It means that the electron is not present inside the well which is not true. Thus the lowest energy value for $n = 1$ is called zero point energy value or ground state energy

i.e $E_{zero\text{-}point} = \frac{h^2}{8ma^2}$

The States for which $n > 1$ are called exited states.

To find out the value of D, normalization of the wave function is to be done

i.e $\int_0^a |\psi_n^2| dx = 1$ — (8)

using the values of ψ_n from eqn (7)

$$\int_0^a D^2 \sin^2 \frac{n\pi}{a} x \, dx = 1$$

$$D^2 \int_0^a \left[\frac{1 - \cos(2n\pi/a)x}{2} \right] dx = 1$$

$$\frac{D^2}{2} \left[\int_0^a dx - \int_0^a \cos \frac{2n\pi}{a} x \, dx \right] = 1$$

$$\frac{D^2}{2} \left[x - \frac{a}{2n\pi} \sin \frac{2n\pi}{a} x \right]_0^a = 1$$

$$\frac{D^2}{2} [a - 0] = 1$$

$$\frac{D^2}{a} a = 1$$

$$D = \sqrt{\frac{2}{a}}$$

Substitute D in equation (7)

the normalized wave functions of a particle infinite potential well is

$$\psi_n = \sqrt{\frac{2}{a}} \sin \frac{n\pi}{a} x \quad — (9)$$

Let us consider the ~~most~~ probable location of the particle in the well and its energies for first three cases

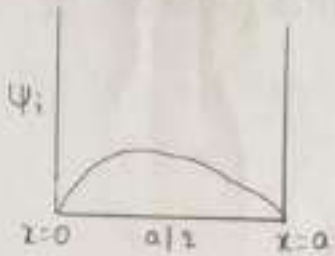
Case 1 → n = 1 It is the ground state and the particle is normally present in this state

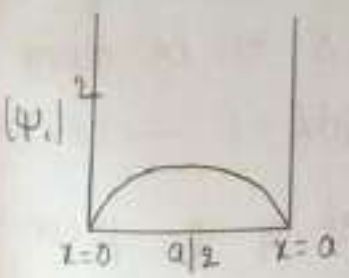
The Eigen function is

$$\psi_1 = \sqrt{\frac{2}{a}} \sin \frac{\pi}{a} x \quad \because \text{from eqn (7)}$$

$\psi_1 = 0$ for $x = 0$ and $x = a$

But ψ_1 is maximum when $x = a/2$





The plots of ψ_1 versus x and $|\psi_1|^2$ verses x are shown in the above figure

$|\psi_1|^2 = 0$ for $x = 0$ and $x = a$ and it is maximum for $x = a/2$. i.e. in ground state the particle cannot be found at the walls, but the probability of finding it is maximum in the middle.

The energy of the particle at the ground state is

$$E_1 = \frac{h^2}{8ma^2} = E_0$$

Case II $\rightarrow n = 2$

In the first excited state the Eigen function of this state is

$$\psi_2 = \sqrt{\frac{2}{a}} \sin \frac{2\pi}{a} x$$

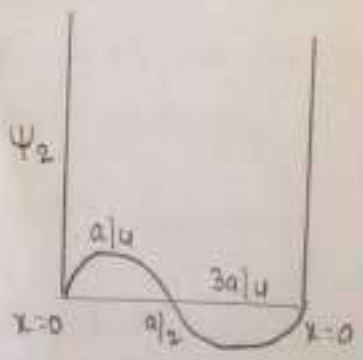
$\psi_2 = 0$ for the values $x = 0, a/2, a$.

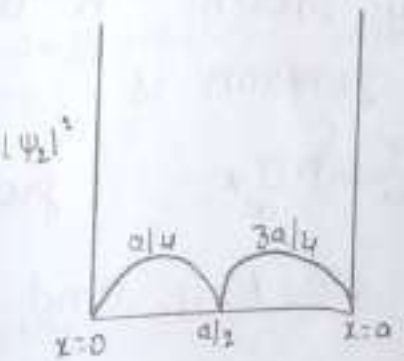
Also ψ_2 is maximum for the values $x = a/4$ and $3a/4$

These are represented in the graphs

$|\psi_2|^2 = 0$ at $x = 0, a/2, a$, i.e particle cannot be found either at the walls or at the centre

$|\psi_2|^2$ = maximum for $x = \frac{a}{4}$, $x = \frac{3a}{4}$





The energy of the particle in the first excited state $E_2 = 4E_0$

Case III → n = 3

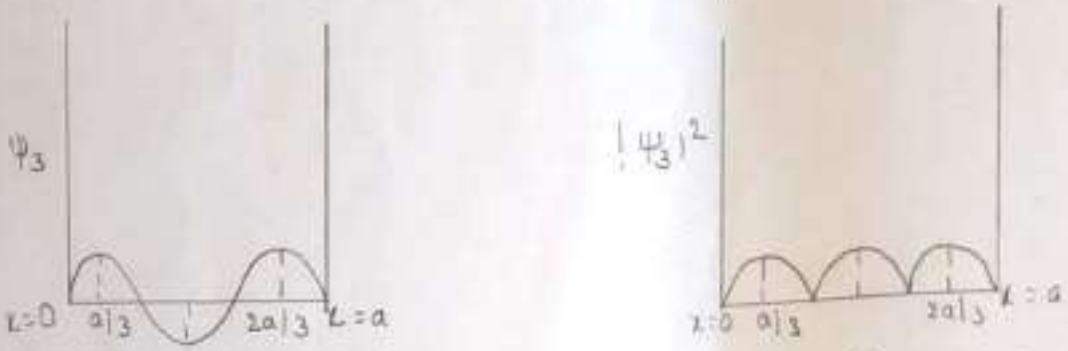
In the second excited state,

$$\psi_3 = \sqrt{\frac{2}{a}} \sin \frac{3\pi}{a} x$$

$\psi_3 = 0$ for $x = 0, a/3, 2a/3$ and a

ψ_3 is maximum for $x = a/6, a/2, 5a/6$

These are represented in the graphs.



$|\psi_3|^2 = 0$ for $x = 0, a/3, 2a/3$ and a. $|\psi_3|^2$ = maximum for $x = \frac{a}{6}$,

$x = \frac{a}{2}$, $x = \frac{5a}{6}$

The energy of the particle in the second excited state is $E_3 = 9E_0$.

5. Write the properties of wave function ? OR what are Eigen functions and Eigen values

Properties of wave function

→ All measurable information about the particle is available

→ ψ should be continuous and single valued

→ Using the Schrodinger equation, energy calculations becomes easy.

→ Probability distribution in three dimensions is established using the wave function

→ The probability of finding a particle if it exists is 1.

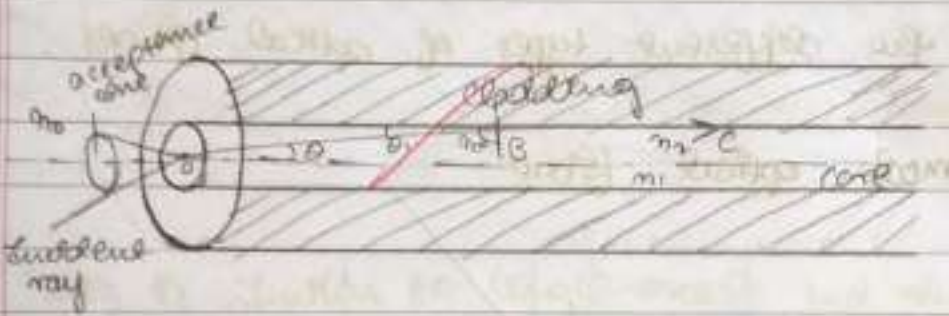
An eigenfunction of an operator $\hat{A}$ is a function f such that the application of $\hat{A}$ on f gives f again, times a constant. $\hat{A}f = kf$

where k is a constant called the eigenvalue. It is easy to show that if $\hat{A}$ is a linear operator with an eigenfunction g, then any multiple of g is also an eigenfunction of $\hat{A}$.

Assignment - 3

① Expression for numerical aperture.

Aug.. Consider a light ray AO incident at an angle θ_0 enters the fibre. Let θ_1 be the angle of refraction of the ray OB. The refracted ray OB incident at an critical angle $(90-\theta_1)$ at B greater the difference of core & cladding difference of the angle of illumination is greater than critical angle then it undergoes total internal reflection.



Let n_1 & n_2 be the refractive indices of the medium, core & cladding respectively.

From Snell's law

$$n_0 \sin\theta_0 = n_1 \sin\theta_1 - 1 \quad (\text{at } 'O')$$

At B angle of incidence is $(90^\circ - \theta_1)$

$\therefore$ from Snell's law, $n_1 \sin(90-\theta_1) = n_2 \sin 90$

$$n_1 \cos\theta_1 = n_2$$

$$\cos\theta_1 = \frac{n_2}{n_1} \quad -1$$

from eqn ①

$$\sin\theta_0 = \frac{n_1}{n_0} \sin\theta_1$$

$$\sin\theta_0 = \frac{n_1}{n_0} \sqrt{1-\cos^2\theta_1} \quad -3$$

$$\frac{n_1}{n_0} \sqrt{1-\frac{n_2^2}{n_1^2}} = \frac{\sqrt{n_1^2-n_2^2}}{n_0} \quad -4$$

If the surrounding medium is air then $n_0 = 1$

$$\sin\theta_0 = \sqrt{n_1^2 - n_2^2}$$

but $\sin\theta_0$ is called numerical aperture.

$$NA = \sqrt{n_1^2 - n_2^2}$$

θ_i - angle of incidence
θ_0 - acceptance angle

$\theta_i < \theta_0 \quad \sin\theta_i < \sin\theta_0$

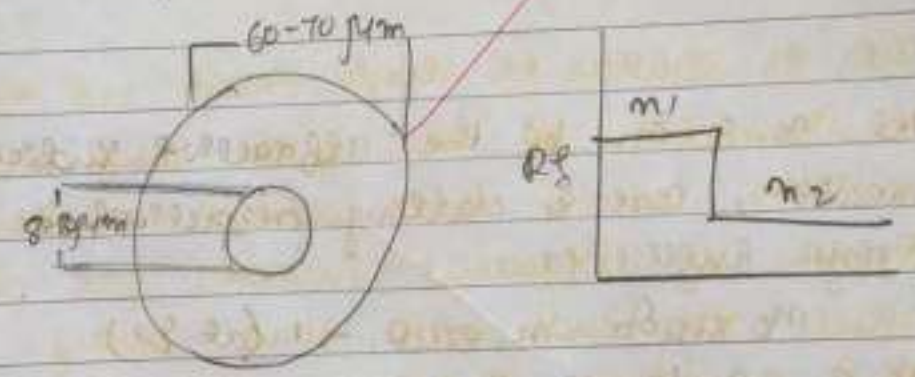
$$\sin\theta_i < \sqrt{n_1^2 - n_2^2}$$

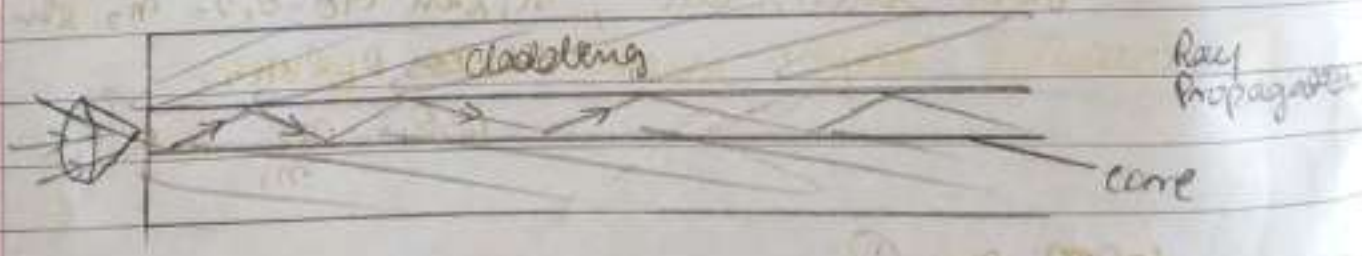
$$\boxed{\sin\theta_i < NA}$$

(2) Explain the different types of optical fibres

Ans

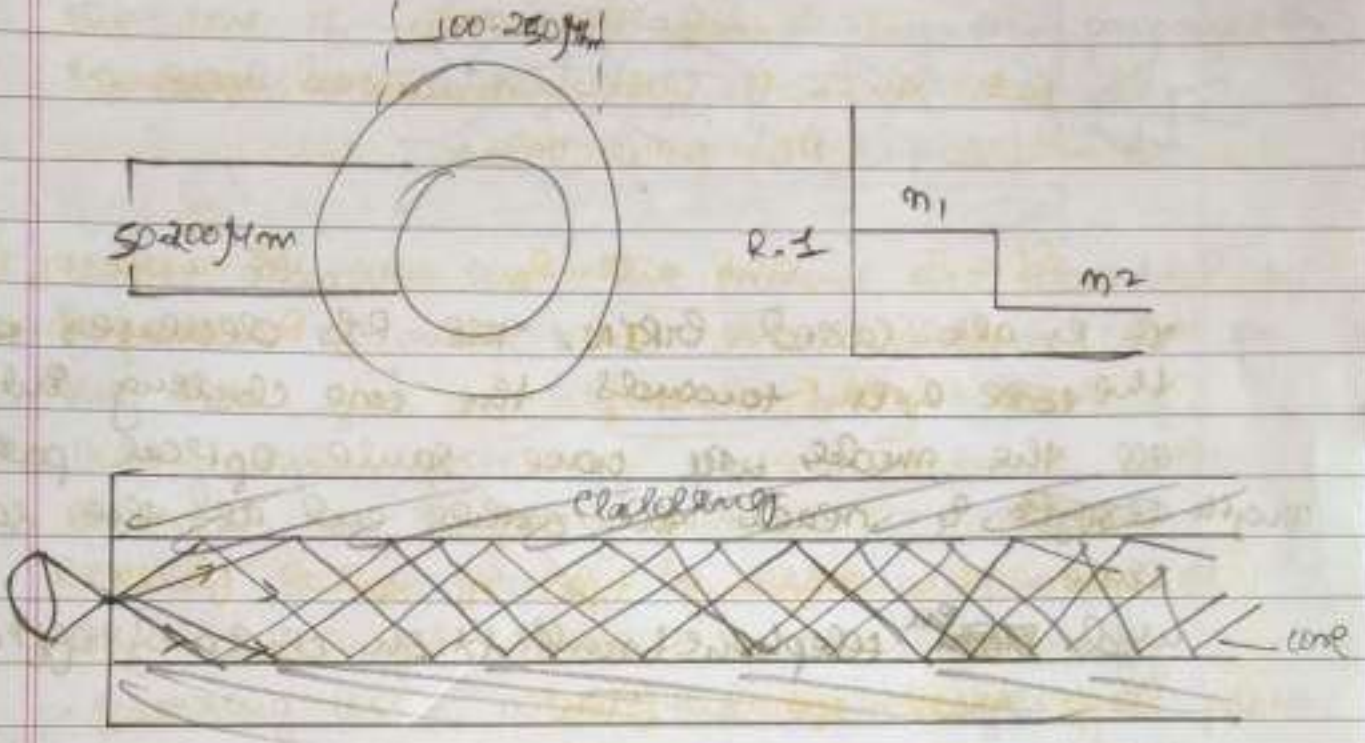
(1) Single mode optical fibre





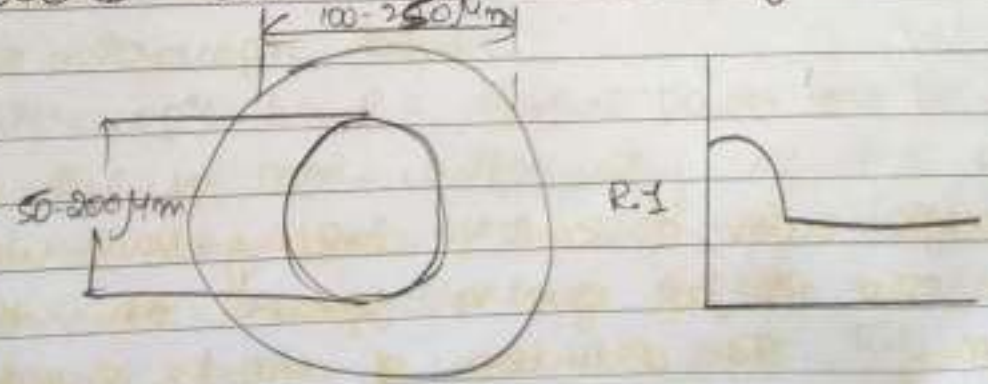
Refractive index of core & cladding have uniform value. The RI of core is greater than that of cladding. The diameter of core is 8-10 μm & of cladding is 60-70 μm. Because of its narrow core it can guide just a single mode used in submarine.

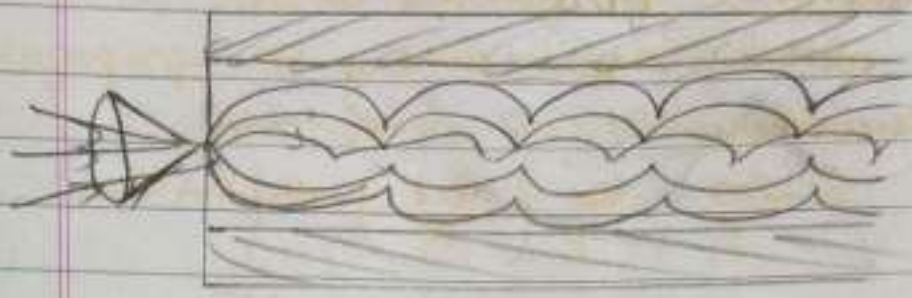
(2) Step index multimode fibre



This is similar to single mode but the core is larger in diameter. It can guide large number of modes hence it is called multimode. The length of different modes are different they reach the end with time delay.
used in data lines.

(3) Graded index multimode fibre.





It is also called GRIN. The RI decreases the axis towards the core cladding interface all the modes will have same optical path length & reach the other end at the same time

used in telephone trunk bton central offices.

(1) What is attenuation & Mention it's causes

Ans The loss of optical signal during its propagation is called attenuation.

$$\alpha = \frac{10}{L} \log\left(\frac{P_{out}}{P_{in}}\right) \text{ dB/km}$$

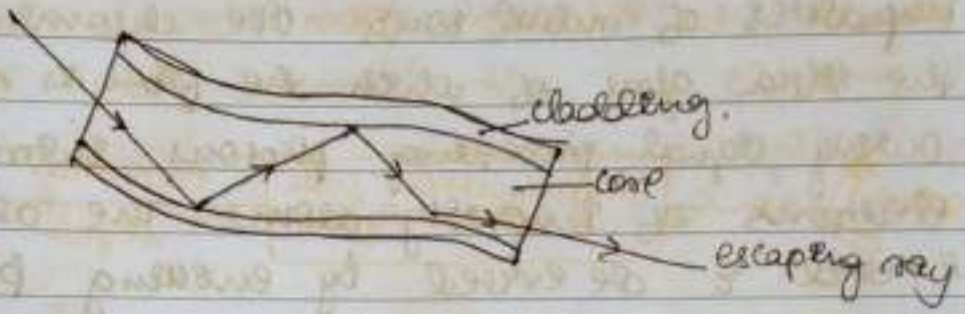
Causes - • absorption loss - The photons are absorbed by impurities of metal ions like chromium, cobalt in the silica glass of which the fiber is made of. During signal processing photons interact with electrons of impurity atoms. The atoms are excited & de excited by emitting photons of diff wavelength. Hence it is a loss of energy.

• Scattering loss - when the wavelength of photon is comparable to the size of the particle then the scattering known as Rayleigh scattering take place. This happens because of the non uniformity in manufacturing, the refractive index of the material changes leads to a scattering of light when light enters non uniform regions. Scattering also takes place due to trapped gas bubbles which are not dissolved during manufacturing.

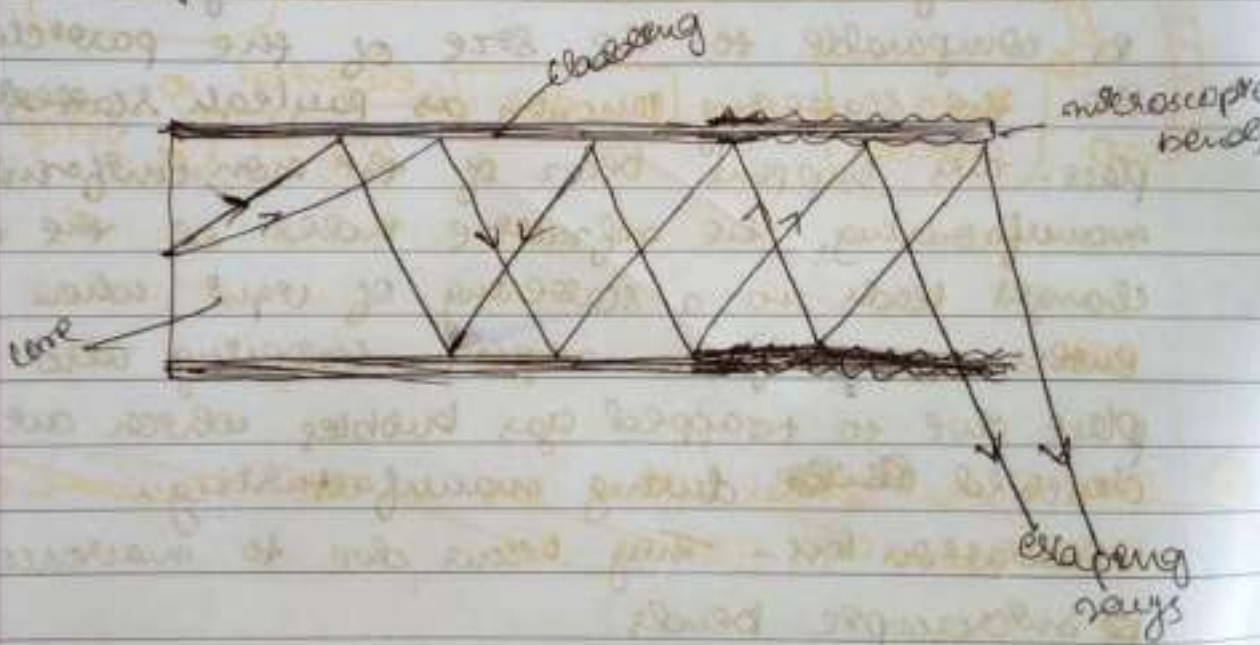
• Radiation loss - They occur due to macroscopic & microscopic bends.

Microscopic bend - optical power loss in optical fibers is due to non-uniformity of the optical fibre when they are laid. The non-uniformity is due to manufacturing defects & also lateral pressure built upon the fiber. This can be overcome by introducing optical fibre inside a good strengthen polyurethane jacket.

Macroscopic bend- All optical fibres have critical angle of curvature provided by the manufacturer. This condition can't be satisfied if the fiber is bent below the specification of radius of curvature the light ray incident on the core cladding interface

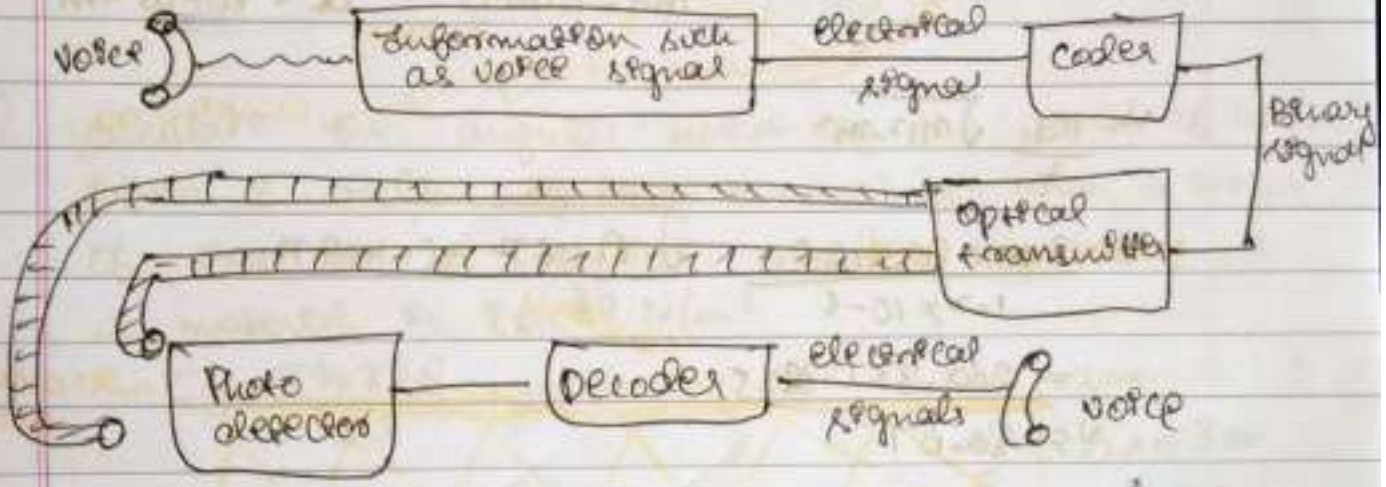


Microscopic bend-



(2) application of optical fibre.

Ans. Optical fibre communication system consists of transmitter, information channel & receiver. transmitter converts electrical signal into optical signal. Information channel carries the signal from transmitter to receiver. The receiver converts optical signal to electrical form.



~~Ans~~

(1) ~~Step index optical fibre has a the diameter of core is 50 micrometer with a R.I~~

Formula's

$\sin\theta_0 - NA = \frac{\sqrt{n_1^2 - n_2^2}}{n_0}$

$\Delta = \frac{n_1 - n_2}{n_1}$

$V = \frac{\pi d}{\lambda} \sqrt{n_1^2 - n_2^2}$ $\quad \alpha = \frac{-10}{L} \log\left(\frac{P_{out}}{P_{in}}\right)$ dB/km

Prob

(1) Step index optical fiber has a core diameter of 80 micrometer with a RI of 1.46 & cladding index of 1.409, given wavelength of light source & 1.2 micrometer. determine the no of modes present.

Sol

V = ? $N = \frac{V^2}{2}$ $n_1 = 1.46$ $\lambda = 1.2 \times 10^{-6}m$

$n_2 = 1.409$ $d = 80 \times 10^{-6}m$

$V = \frac{\pi d}{\lambda} \sqrt{n_1^2 - n_2^2}$

$V = \frac{3.14 \times 80 \times 10^{-6}}{1.2 \times 10^{-6}} \sqrt{(1.46)^2 - (1.409)^2}$

$= 209.3 \times 0.3825$

$V = 80.07$

$N = \frac{(80.07)^2}{2}$

$N = 3205.00$

(2) calculate the extension produced in a wire of length 2m & radius $0.013 \times 10^{-2}m$ due to a force of 14.7N applied along its length. Given Young's modulus of a material of the wire $y = 8.1 \times 10^{11} Nm^2$.

Sol

$l = 2m$ $Y = 8.1 \times 10^{11} Nm^2$ $r = 0.013 \times 10^{-2}$ $F = 14.7N$

$l = ?$

$Y = \frac{FL}{\pi r^2 l}$

$$l = \frac{FL}{\pi r^2 y}$$

$$l = \frac{14.7 \times 2}{3.14 \times (0.013 \times 10^{-2})^2 \times 2.1 \times 10^{11}}$$

$$= \frac{29.4}{11483.86}$$

$$= 2.63 \times 10^{-3} mm.$$

(3) Calculate the angular twist of the wire of length 0.3m & radius $0.2 \times 10^{-3} m$ when a torque of $5 \times 10^{-4} Nm$ is applied. Rigidity modulus of a material is $8 \times 10^{10} N/m^2$

Sol.

$$\tau = \frac{\pi n r^2 \theta}{2l}$$

$l = 0.3m$

$r = 0.2 \times 10^{3} m$

$\tau = 5 \times 10^{-4} Nm$

$n = 8 \times 10^{10} Nm^{-2}$

$$\theta = \frac{\tau \times 2l}{\pi n r^4}$$

$$\theta = \frac{2 \times 0.3 \times 5 \times 10^{-4}}{3.14 \times 8 \times 10^{10} \times (0.2 \times 10^{-3})^4}$$

$$\theta = 0.146$$

(4) Given the refractive index of the core & cladding are 1.55 & 1.50 respectively calculate the numerical aperture, acceptance angle, fractional index change

Sol

$n_1 = 1.55$ $\quad n_2 = 1.50$

$$NA = \sin\theta_0 = \frac{\sqrt{n_1^2 - n_2^2}}{n_0}$$

$$\sin\theta_0 = \frac{\sqrt{(1.55)^2 - (1.50)^2}}{1}$$

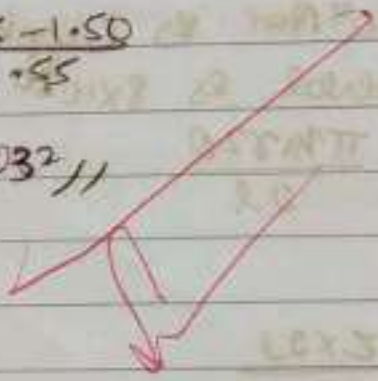
$$NA = \sin\theta_0 = 0.3905$$

$$\theta_0 = \sin^{-1}(0.3905)$$

$$\theta_0 = 22.97^\circ$$

$$\Delta = \frac{n_1 - n_2}{n_1} = \frac{1.55 - 1.50}{1.55}$$

$$\Delta = 0.032 //$$



DON BOSCO INSTITUTE OF TECHNOLOGY,

KUMBALAGODU, BENGALURU – 560074

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

6th SEMESTER EEE

DIGITAL SIGNAL PROCESSING LAB Question Bank (15/17/18EEL68)

1. Verify sampling theorem for the given sine continuous time signal
2. Verify sampling theorem for the given cosine continuous time signal
3. Find the impulse response h(n) of the given LTI system whose response is y(n)=[1 2 1 1 0 -1] to an input x(n)=[1 1 1 1]. Also verify the result using conv operation (Finite Impulse Response).
4. A LTI system is described by the difference equation y(n) - y(n-1) + 0.9 y(n-2) = x(n);
   Find its impulse response h(n) at n=0,.....,100. (Infinite Impulse Response)
5. Find the convolution of two sequences given first sequence X1=[1 2 3 4] and second sequence X2=[2 3 2 4]
6. Find the convolution of two sequences given first sequence x1=[1 2 3 2 1 3 4] whose time index is [-3 -2 -1 0 1 2 3] and second sequence x2=[2 -3 4 -1 0 1] whose time index is [-1 0 1 2 3 4]
7. Perform Circular convolution by summation formula
8. Perform Linear convolution from circular convolution with zero padding
9. Computation of N point DFT of a given sequence and to plot magnitude and phase spectrum.
10. Perform linear convolution and circular convolution of two given sequences x1 & x2 using DFT & IDFT
11. Obtain the impulse response/step response of a system described by the given difference equation.
12. Difference equation y(n) - y(n-1) + 0.9y(n-2) = x(n);
13. Calculate impulse response h(n) and also step response at n=0,.....,100
14. Plot the steady state response y[n] to x[n]=cos(0.05πn)u(n), given y[n]-0.8y[n-1]=x[n]
15. Compute DFT and IDFT of the given sequences using FFT
16. Compute the 8 point DFT of the sequence given using DIFFFT x[n]=[1, 2, 3,4]
17. Compute the IDFT of the sequence.
    X[k]=[10.0000 + 0.0000i , -0.4142 - 7.2426i ,-2.0000 + 2.0000i , 2.4142 - 1.2426i, -2.0000 + 0.0000i , 2.4142 + 1.2426i , -2.0000 - 2.0000i , -0.4142 + 7.2426i]
18. Design a butterworth low pass filter (IIR) for the following specifications.
    Pass band gain =Kp = −2 dB ; Pass band edge frequency = 1KHz
    Stop band gain =Ks = −15 dB ; Stop band edge frequency = 2.5KHz
19. Sampling frequency = 8 KHz
20. Design a butterworth high pass filter (IIR) for the following specifications.
    Pass band gain =Kp = −2 dB ; Pass band edge frequency = 2.5KHz
    Stop band gain =Ks = −15 dB ; Stop band edge frequency = 1KHz
    Sampling frequency = 8 KHz

21. Design and implement a digital band pass IIR filter that is available in following analog equivalent which has the following specifications

Lower pass band edge frequency =100Hz ; Upper pass band edge frequency = 200Hz

Lower stop band edge frequency =10 Hz ; Upper stop band edge frequency =2000 Hz

Sampling frequency =8KHz

Pass band gain = – 2 dB ; Stop band gain = – 20 dB

22. Design and implement a digital band reject IIR filter that is available in following analog equivalent which has the following specifications

Lower pass band edge frequency = 10Hz ; Upper pass band edge frequency = 2000Hz

Lower stop band edge frequency =100 Hz ; Upper stop band edge frequency =200 Hz

Sampling frequency =8KHz

Pass band gain = – 2 dB ; Stop band gain = – 20 dB

23. Design a lowpass FIR filter to meet the following specifications using rectangular window method

Pass band = 0-1850Hz,stopband =2150-4000Hz, stopband attenuation =20 dB passband ripple= 1dB Sampling rate= 8000Hz

24. Design a high pass FIR filter to meet the following specifications using Hanning window method

Stopband =0-1500 Hz, passband =2500-4000 Hz, stopband attenuation =40 dB, passband ripple =0.1dB ,sampling rate=8000 Hz

25. Design a band pass FIR filter to meet the following specifications using Hamming window method

Lower stopband= 0-500 Hz, passband= 1600-2300 Hz, upper stopband= 3500-4000 Hz,stop band attenuation= 50dB, pass band ripple= 0.05dB ,sampling rate= 8000 Hz.

26. Design a band stop FIR filter to meet the following specifications using blackman window method.

Lower cutoff frequency =1250Hz, Lower transition width = 1500 Hz,Upper cutoff frequency =2850 Hz,Upper transition width = 1300 Hz, stopband attenuation =60dB ,passband ripple =0.02dB ,Sampling rate= 8000 Hz

27. Design and implement a low pass filter with N=20 , to meet the following specifications using frequency sampling method.

28. Design and implement a high pass filter with N=20 , to meet the following specifications using frequency sampling method.

29. Design and implement a band pass filter with N=20 , to meet the following specifications using frequency sampling method.

30. Design and implement a band stop filter with N=20 , to meet the following specifications using frequency sampling method.

31. Realize an IIR filter for the LTI system described by the equation

$y(n)= -0.1\, y(n-1) + 0.72\, y(n-2)+ 0.7\, x(n) - 0.252\, x(n-2)$

32. Realize an FIR filter for the LTI system described by the equation

$H(z)= 1 + 16.0625\, z^{-4} + z^{-8}$

WAYANAMAC EDUCATION TRUST(R)

DON BOSCO INSTITUTE OF TECHNOLOGY

KUMBALAGODU, BENGALURU

Department of Electrical & Electronics Engineering

AY - SEP-2020 TO AUG-2021 LAB INTERNAL (EVEN SEMESTER)

College : Don Bosco Institute of Technology
Department : EEE
Semester : VI
Subject : Digital Signal Processing Laboratory

College Code : DB
Regional Code : 01
Subject Code : 15/17/18EEL67

Sl. No	Date	Time	USN	No of Students	Batch No
1	17/08/2021	9.15AM-11.15 AM	1DB18EE001, 002, 003, 005,007,010,011,014	08	B1
		11.15AM-1.15 PM	1DB18EE015,016,017,018,019,020,021,022,023	09	B2
		2.15PM-4.15PM	1DB18EE024,025,026,029,030,031,032,033	08	B3
2	18/08/2021	9.15AM-11.15 AM	1DB18EE034,035,037,038,039,040,041,043	08	B4
		11.15AM-1.15 PM	1DB18EE044,045,046, 1DB19EE400,401,402,403,404,405	09	B5
		2.15PM-4.15PM	1DB19EE406,407,408,409,410,411,412,413	08	B6
3	19/8/2021	9.15AM-11.15 AM	1DB19EE414,415,416,417,418,419,1DB17EE002,003	08	B7
		11.15AM-1.15 PM	1DB17EE014,20,25,411, 1DB18EE401,402,403,410	08	B8

Sharmila 13/08/21
COORDINATOR

13/8/2021
HOD - EEE

DON BOSCO INSTITUTE OF TECHNOLOGY, BENGALURU – 560074

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Attendance for Internal Practical Examination

B. E. 6th Semester Session: 9:00AM – 4:30PM

Subject: Digital Signal Processing Subject Code: 18EEL67

Date: 17/8/21 & 18/8/21 USNs from 1DB18EE001 to 1DB17EE411 (with breaks)

Sl. No	USN	Student Name	Signature
1	1DB18EE014	Hemavathi.K.S	Hema
2	1DB18EE011	Dhanush Yadav.T.L	Dhanush TL
3	1DB18EE007	Chandra Shekar.N	Chandra Shekar.N
4	1DB18EE003	Akash.R	Akash R
5	1DB18EE010	Deepika.Y	Deepika.P
6	1DB18EE005	Bhuvana.P	Bhuvana.P
7	1DB18EE002	Akash.K.M	
8	1DB18EE001	Aamir Sidque	—online—
9	1DB18EE016	Jeevitha.S	
10	1DB18EE015	Jayachandra A.S	
11	1DB18EE022	N Tejas	Tej.
12	1DB18EE017	KAMAL NAYAK SINGH	KS
13	1DB18EE023	Nagesh.N.B	Nagesh
14	1DB18EE020	Mamatha.M	Mamatha.M
15	1DB18EE019	Madhuna.K	
16	1DB18EE018	M.V. Shashank Yadav	M.V. Shashank yadav
17	1DB18EE021	Monika.V	—online—
18	1DB18EE033	Sai Vyshnav.U	Sai Vyshnav.
19	1DB18EE030	Rajin Rajan	
20	1DB18EE096	Purushanth Kumar M	Purushanth.M
21	1DB18EE029	Rohan.M.C	
22	1DB18EE032	S. Lohith	Lohith
23	1DB18EE024	Nitha Royals YR	Nitha Royals
24	1DB18EE031	Ruchitha Ramesh D.R	Ruchitha Ramesh D.
25	1DB18EE035	Nivitha N.M	Nivitha.N.M
26	1DB18EE038	Sreeraj.	—online—
27	1DB19EE408	Koushik.R.	
28	1DB18EE046	Yashaswini P.M	Yashaswini P.M
29	1DB19EE410	Nandhan Shetty BN	Nandhan Shetty. BN
30	1DB19EE413	Sagar	Sagar
31	1DB19EE411	ROHINI KUMAR.S	Rohini. S.S
32	1DB19EE409	Bhavanya.H.S	Bhavanya.H.S.
33	1DB19EE406	Lavya Shree B.G	Lavya
34	1DB18EE034	SAMARTH.N.C	Samarth.N.C
35	1DB18EE035	Samveeksha	
36	1DB18EE037	SONIA. D UJJINAKOPPA	Sonia
37	1DB19EE407	Kishore Gowda.T	Kishore.T
38	1DB19EE401	BN Pallavi	
39	1DB18EE039	Suchithra V.C	Suchithra.V.C
40	1DB18EE041	Ullas A	

B1 | B2 | B3 | 18/08/2021

DON BOSCO INSTITUTE OF TECHNOLOGY, BENGALURU – 560074

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Attendance for Internal Practical Examination

B. E. 6th Semester Session: 9:00 am to 4:30 pm

Subject: DSP Lab Subject Code: 18EEL67.

Date: 18/8/21 & 19/8/21 USNs from 1DB18EE001 to 1DB17EE411 (with brea

Sl. No	USN	Student Name	Signature
41	1DB18EE040	Thashwin Gowda.M	Thashwin Gowda.M
42	1DB18EE041B	Veerendra Gowda B.K.	R.K.Veerendra Gowda
43	1DB19EE403	Dhruva Kumar.H	
44	1DB19EE405	Karthik.A	
45	1DB19EE412	RAVIKIRAN V.R	
46	1DB19EE400	Ajay.R	Ajay.R.
47	1DB19EE404	Dilip.Kumar.R	
48	1DB18EE044	Vignesh Venugopal	
49	1DB18EE045	VIKAS	
50	1DB19EE414	Sanjay.C	Sanjay C
51	1DB19EE416	Subhash.R	Subhash.R
52	1DB19EE417	Sushmitha.B.H	Sushmitha.B.H
53	1DB19EE418	Swathi.J.S	Swathi.J.S
54	1DB19EE415	Shashank.K.R	
55	1DB17EE002	Anish Pandey	Anish Pandey
56	1DB17EE003	BHUVANESHWAR.K	
57	1DB17EE014	Jitesh Kumar M	
58	1DB17EE020	M. Sriram	
59	1DB18EE402	Avinash.J	
60	1DB18EE401	ArunKUMAR.S	ArunKumar.S
61	1DB17EE025	M Anjunath.S	
62	1DB18EE403	Divya.k	Divya.K.
63	1DB18EE410	Vaudeva.B	Vaudeva.
64	1DB17EE411	Prashanth.C.V	
65	1DB19EE419	Bakhid Fazal	online.
66	1DB19EE402	Chayan Laskar	online

No. of absentees: 00

Signature of Internal Examiner 1 19/8/21

Signature of Internal Examiner 2 19/8/21

19/8/2021
HOD - EEE

WAYANAMAC EDUCATION TRUST (R)

DON BOSCO INSTITUTE OF TECHNOLOGY

KUMBALAGODU, MYSORE ROAD, BENGALURU – 560074

LABORATORY INTERNAL ASSESSMENT TEST RECORD

Name: Deepika.N

USN / Roll No: 1DB18EE010

Subject: Digital Signal Processing lab Subject Code: 18EEL67

Branch: EEE Semester: VI Section:

Parameter for evaluation	Max Marks	Marks Obtained
Write up & Procedure	15	10
Conduction & Result	70	40
Viva – Voce	15	09
Total Marks	**100**	59
Scale down mark	16	10

Deepika.N
Signature of the Student

Signature of Faculty 17/8/21

Experimental Write Up:

(6) Using MATLAB perform linear convolution of a given sequence, $x(n) = \{1, 2, 3, 1\}$ & $h(n) = \{4, 2, 2, 3\}$ using Matrix method. Verify the answer theoretically;

(Program)

```
clc;
clear all;
x = input('Enter the first sequence');
h = input('Enter the second sequence');
N1 = [length(x)];
N2 = [length(h)];
N = max(N1, N2);
x1 = [x, zeros(1, N1-N2)]
h1 = [h, zeros(1, N2-N1)]
if (N1 > N2)
  for n = 1:N-1;
```

```
for k=1:N-1;
 sum=0;
 if (i = mod(n-k)>=0).
   i= n-k+1;
  else
 i= n-k+N+1;
 end
x1 = transpose(x);
h1 = transpose(h);
 temp=h;
 i = i+N;
 else
 temp= circshift(temp,1);
  h = horzcat(h, temp);
 end
  disp(h);
   end.
    end
 else
 h1 = [h1, zeros(1, N2-N1)];
  else
  y=x*h;
  y=y';
 end
 y(n+1) = y(n+1) + h(k+1)* x(n+1);
  disp(y)
  subplot(2,1,2);
  stem(h)
   xlabel('n')
   ylabel('h(n)')
  title('Circular convolution of
       output y(n)= ');
```

conduct
(c)

calculation :-

1DB18EE010

$x(n) = \{1, 2, 3, 1\}$

$h(n) = \{4, 2, 2, 3\}$

$y = x(n) * h(n)$

$$y = \begin{bmatrix} 1 & 1 & 3 & 2 \\ 2 & 1 & 1 & 3 \\ 3 & 2 & 1 & 1 \\ 1 & 3 & 2 & 1 \end{bmatrix} \begin{bmatrix} 4 \\ 2 \\ 2 \\ 3 \end{bmatrix}$$

$\Rightarrow$ $4+2+6+6 = 18$

$8+2+2+9 = 21$

$12+4+2+3 = 21$

$4+6+4+3 = 17$

$y = \{18, 21, 21, 17\}$

with corrections o/p seen 3hrs.

3hrs

lab CIE $24/24$ + $10/16$ = $34/40$

IA

final IA .

$34/40$

3hrs

17/8/21

Certificate

Name: Deepika. ly Class:

Roll No: 1DB18EE010 Exam No: 1DB18EE010

Institution Don-Bosco Institute of Technology

This is certified to be the bonafide work of the student in the Digital Signal Processing *Laboratory during the academic year 2020 / 2021 .*

No. of practicals certified 12 *out of* 12 *in the subject of* Digital Signal Processing

Sharmila..

Teacher In-charge

Sharmila..

Examiner's Signature

17/8/2021.

HOD/*Principal*

Date: 17/8/21

Institution Rubber Stamp

(N.B: The candidate is expected to retain his/her journal till he/she passes in the subject.)

Index

S. No.	Name of the Experiment	Page No.	Date of Experiment	Date of Submission	Remarks
1)	DSP LAB INTRODUCTION. MATLAB SOFTWARE INTRODUCTION	1-7	21/6/21	2/8/21	(10) Sha 2/8/21
2)	VERIFICATION OF SAMPLING THEOREM	8-12	22/6/21	2/8/21	(10) Sha 2/8/21
3)	LINEAR CONVOLUTION	14-18	25/6/21	2/8/21	(10) Sha 2/8/21
4)	CIRCULAR CONVOLUTION OF GIVEN TWO SEQUENCE	19-25	02/7/21 05/7/21	2/8/21	(10) Sha 2/8/21
5)	LINEAR CONVOLUTION OF THE GIVEN TWO SEQUENCE	31-33	13/7/21	2/8/21	(10) Sha 2/8/21
6)	COMPUTATION OF N POINT DFT	26-29	15/7/21	2/8/21	(10) Sha 2/8/21
7)	SOLUTION OF DIFFERENCE EQUATION	34-39	16/7/21	4/8/21	(10) Sha 4/8/21
8)	CALCULATION OF DFT AND IDFT USING FFT METHOD	40-42	22/7/21	5/8/21	(10) Sha 5/8/21
9)	DESIGN AND IMPLEMENTATION OF IIR FILTERS TO MEET GIVEN SPECIFICATION (low pass, high pass, band pass, and Band reject filters)	43-51	-?	5/8/21	(10) Sha 5/8/21

INDEX

Name of the Student..... Devika. Y .....Class: ..... Year: .....

Expt. No	Date	Title of the Experiment	Page No.	Date of submission	Remarks
11		Design & Implementation of FIR filters to meet given specifications (low pass, high pass, band pass & band reject filters) using Different sampling techniques.	58-63	7/8/21	(10) Sha 7/8/21
12		Realization of IIR & FIR filters	64-71	7/8/21	(10) Sha 7/8/21

REMARKS

Completed

Sha 7/8/21

TEACHER

Date 21/6/21

Expt. No. _____ Page No. 1

Introduction to MATLAB

→ MATLAB stands for MATrix LABoratory. It is technical computing environment for high performance numeric computation and visualization which has application in almost all the areas.

→ MATLAB is one of the few languages in which each variable is a matrix. Moreover the fundamental operators (eg: addition, multiplication) are programmed to deal with matrices when required.

→ In the MATLAB environment, a matrix is a rectangular array of numbers. Unlike languages such as C & C++, there is no such syntax in MATLAB. Anyone having knowledge of simple programming language can work with the MATLAB. So learning MATLAB programming is made easier using built-in applications.

→ MatLAB is very rich with toolboxes, which consists of various functions depending on the applications. These functions can be used as command to perform particular operation.

→ MATLAB has a very good help support for all its built in functions and programming language constructs.

→ MATLAB has demonstration program that shows many of its features. The program includes tutorial introduction

Teacher's Signature _____

Date

Expt. No.

. Type demo at the matlab prompt to invoke the Demonstration program and follow the instruction on the screen.

Teacher's Signature

- Generation of sine wave

Program:

```
clc;
clear all;
close all;
fs = 2000;
f = 50
t = 0:1/fs:(1/f);
x = sin(2*pi*f*t);
plot (t,x);
title ('sinewave');
x label ('time in sec');
y label ('Amplitude');
```

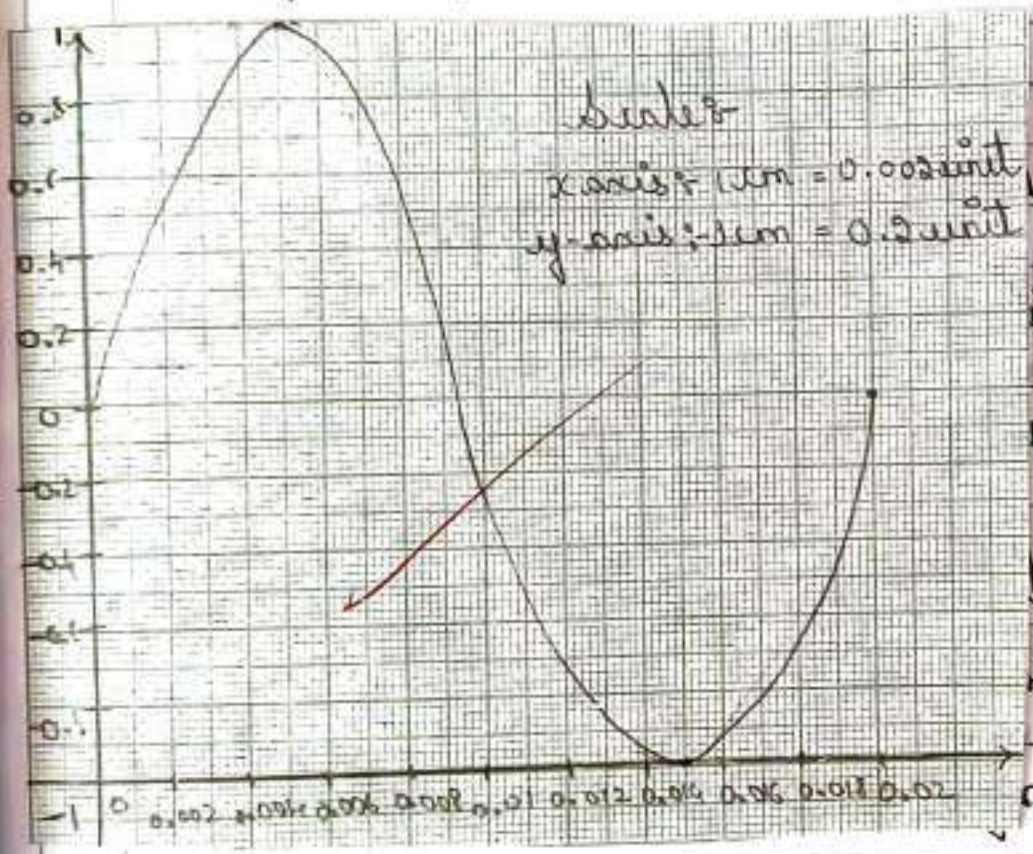
Date

Expt. No. Page No. 3

Generation of different signals in MATLAB:-

- Generation of sine wave

Sample Explaination



window

les

indows will be closed.

y.

]

ine sequence for sinewave

neration using Sine function

plot(t,x); % the sine wave is displayed in diferent plot window.

title('sine function')

Teacher's Signature

· Operation on discrete time step signal

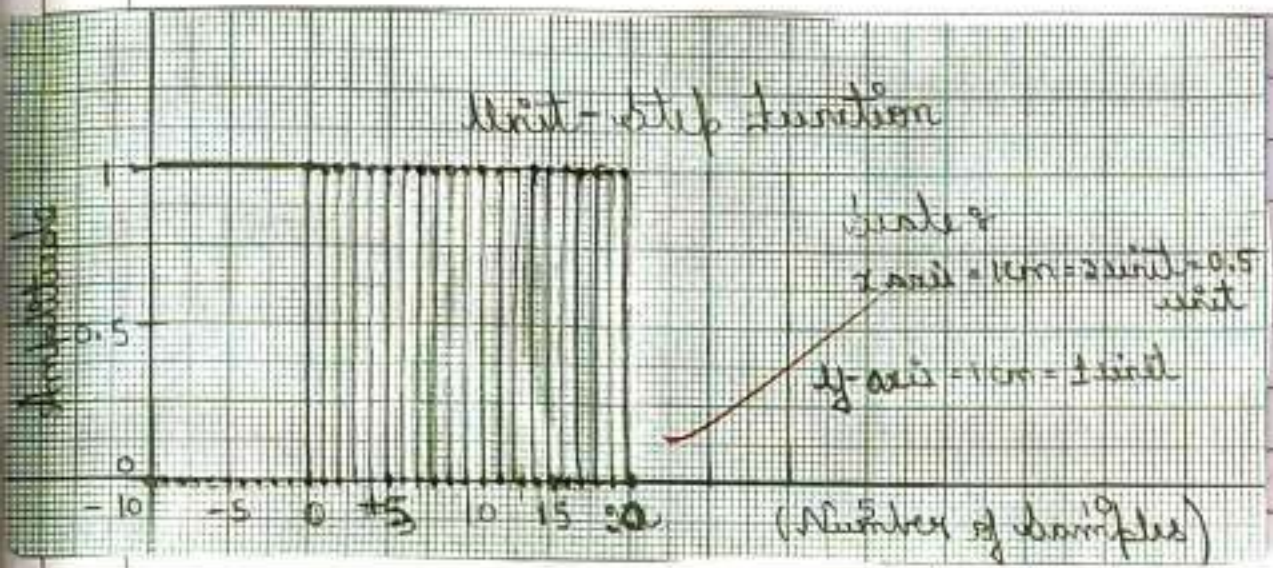
Program:

```
clc;
clear all;
close all;
n = -10:20; % Define time vector
u = [(n)>=0]; % Unit step
u5 = [(n-10)>=0]; % Delayed step
subplot(211), stem(n,u) title ('Unit-step function);
xlabel ('Number of samples');
ylabel ('Amplitude');
subplot(212), stem(n,u5), title ('Delayed
 Unit-step function');
xlabel ('Number of samples');
ylabel ('Amplitude');
```

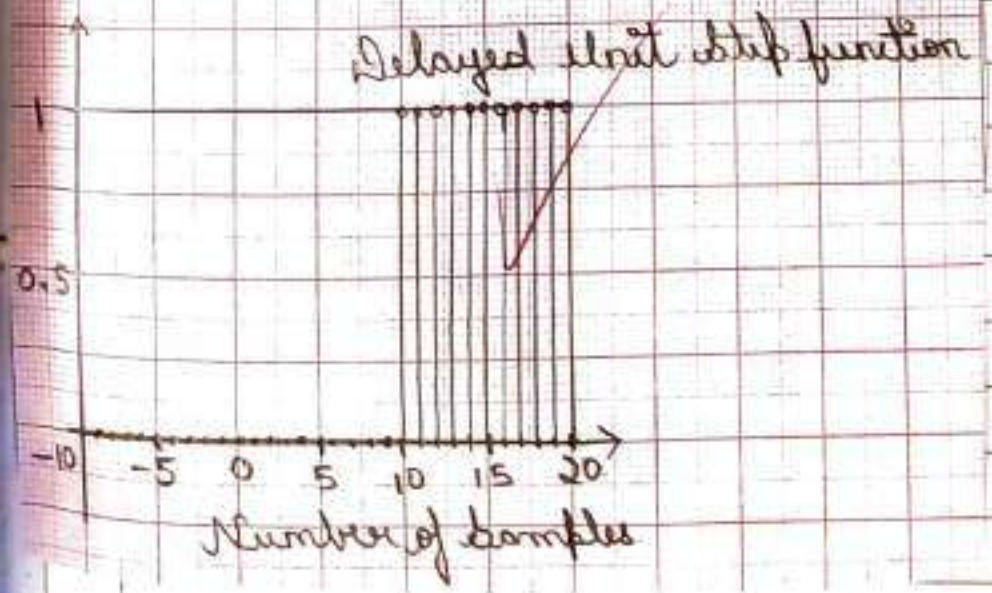
Date

Expt. No. Page No. 4

• Operation on Desirete Line step signals.



Scale :-
x axis = 2cm = 0.5 unit
y axis = 1cm = 5 unit



Teacher's Signature

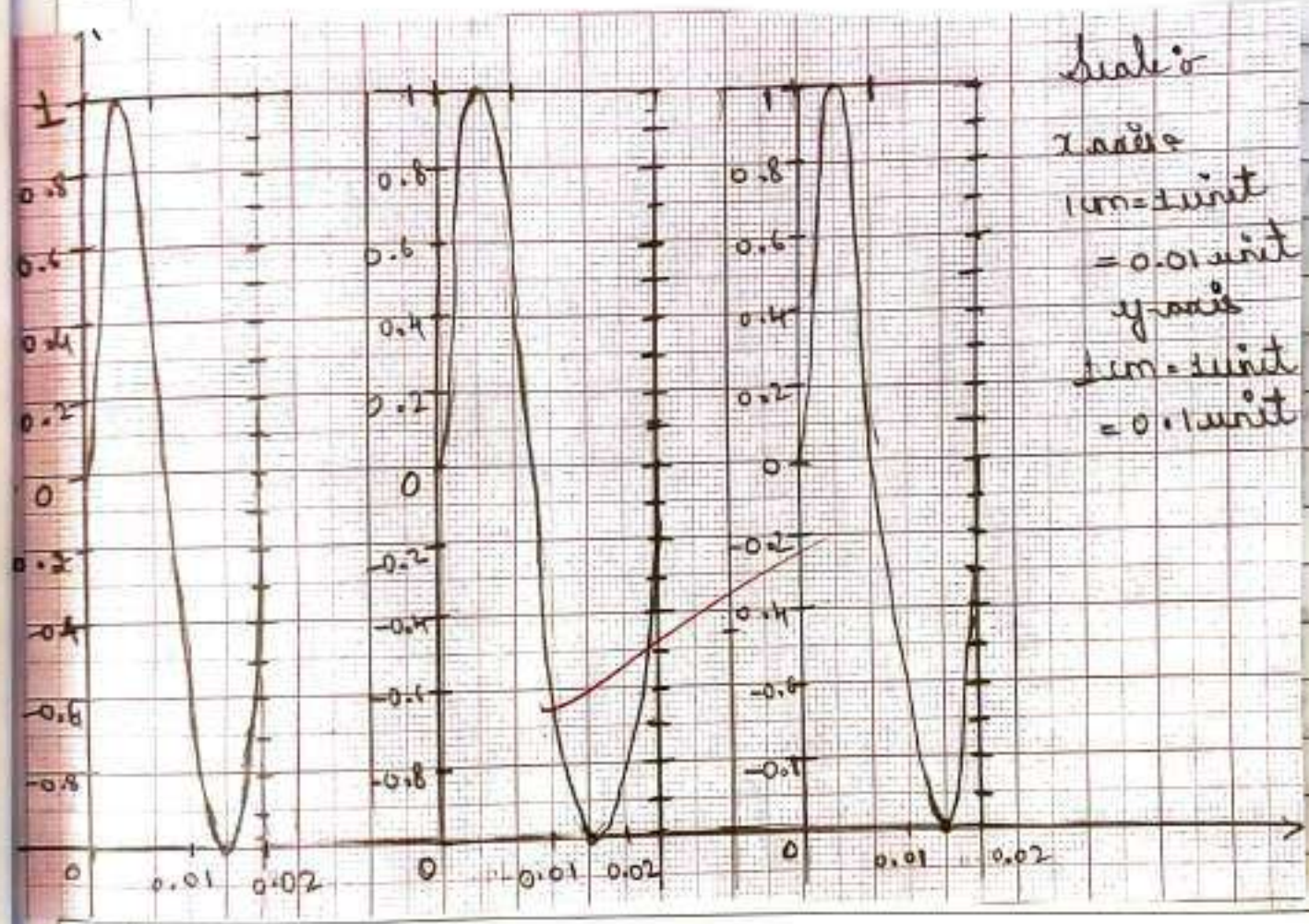
Program:

```
clc;
clear all;
close all;
fs = 2000;
f = 50
t = 0:1/fs:(1/f);
x = sin(2*pi*f*t);
subplot (1,3,1)
plot (t,x);
title ('Sine function')
xlabel('time');
ylabel ('Magnitude');
y1 = 2*x;
subplot (1,3,2);
plot (t,y1);
title ('2x(t)')
xlabel ('time');
ylabel ('magnitude');
y2 = 0.5*x;
subplot (1,3,3);
plot (t,y2);
title ('x(t)/2')
xlabel ('time');
ylabel ('magnitude');
```

Date

Expt. No. _____ Page No. 5

- Generation of Multiple sine wave plots in single window.



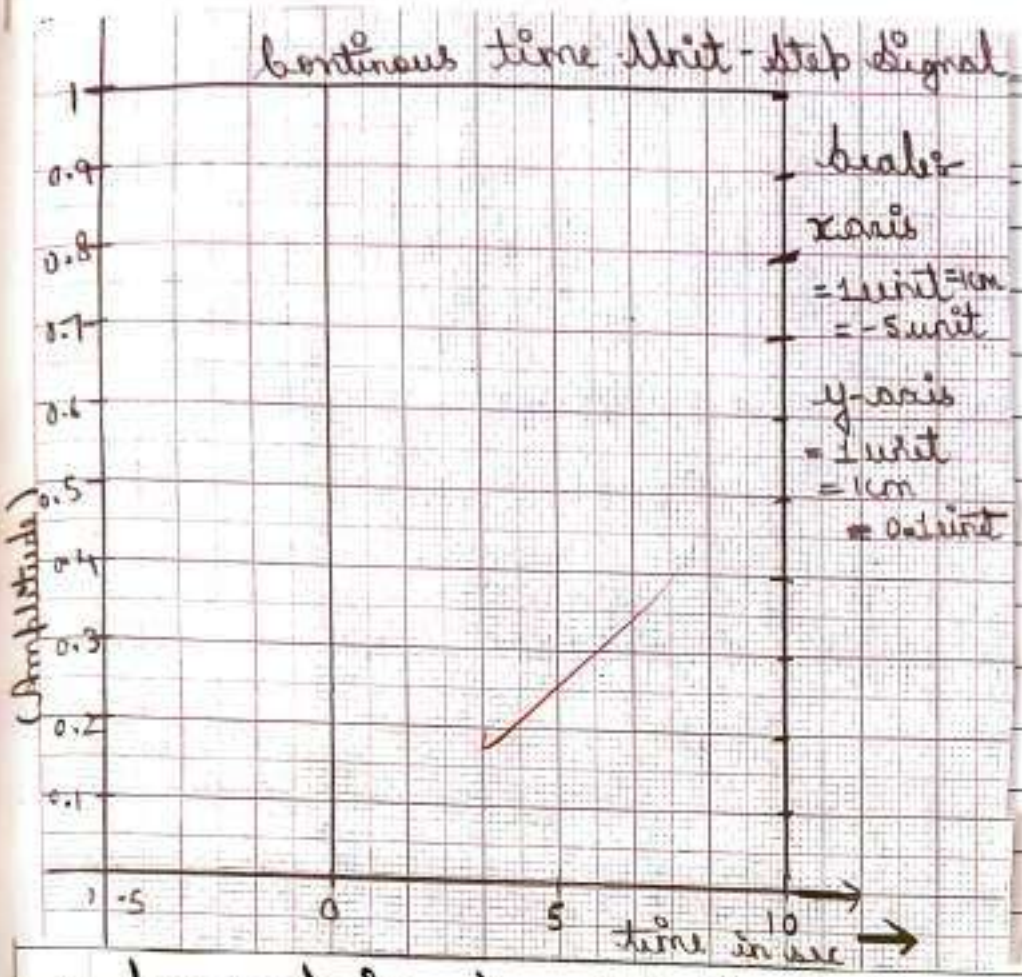
Teacher's Signature _____

Program

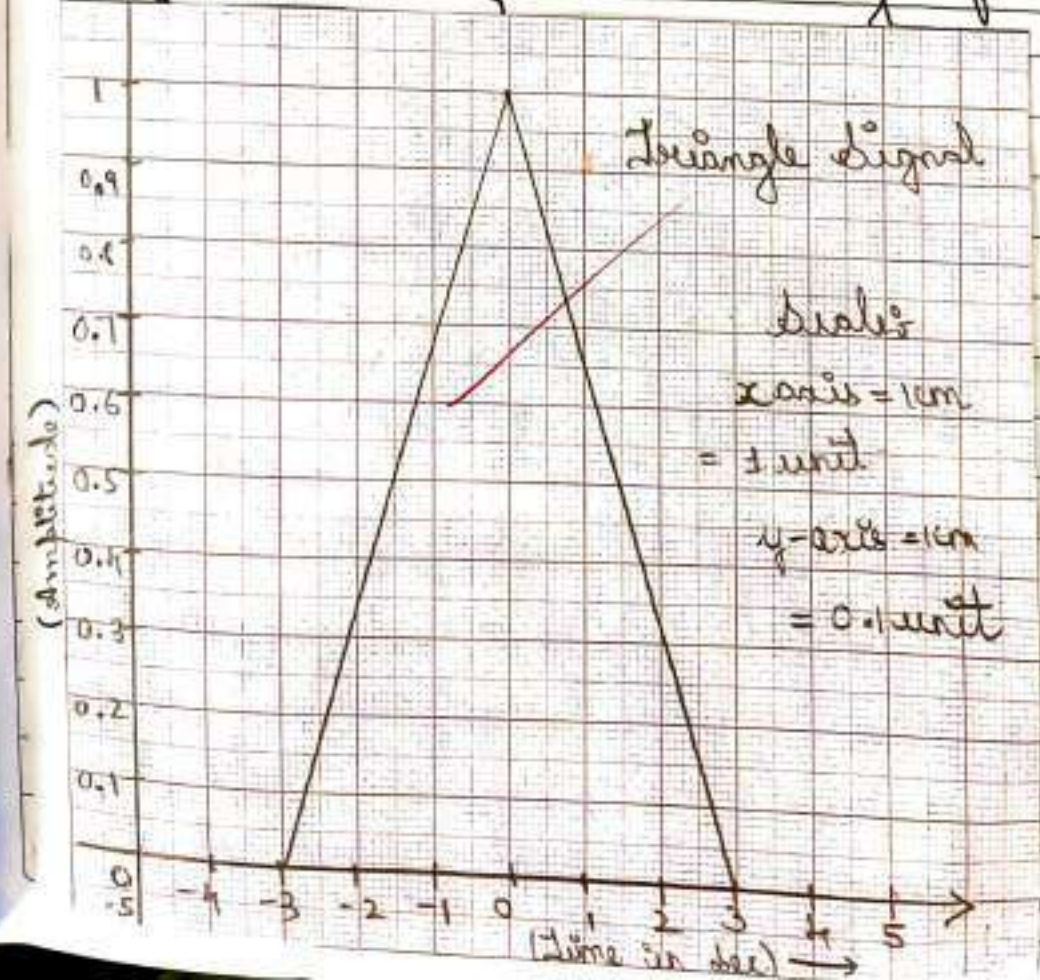
```
clc;
clear all;
close all;
t = -5:0.01:10;
x1 = 1
x2 = 0;
x = x1.*(t>=0)+x2*(t<0)
plot(t,x);
title('Continuous time Unit step signal');
xlabel('time in sec');
ylabel('Amplitude');
```

Program :-

```
clc;
clear all;
close all;
t= -5:0.01:5;
a = 3;
x1 = 1-abs(t)/a;
x2 = 0
x = x1.*(abs(t)<=a)+x2.*(abs(t)>a);
plot(t,x);
title('triangle signal');
xlabel('time in sec');
ylabel('Amplitude');
```



• Generation of unit triangle function



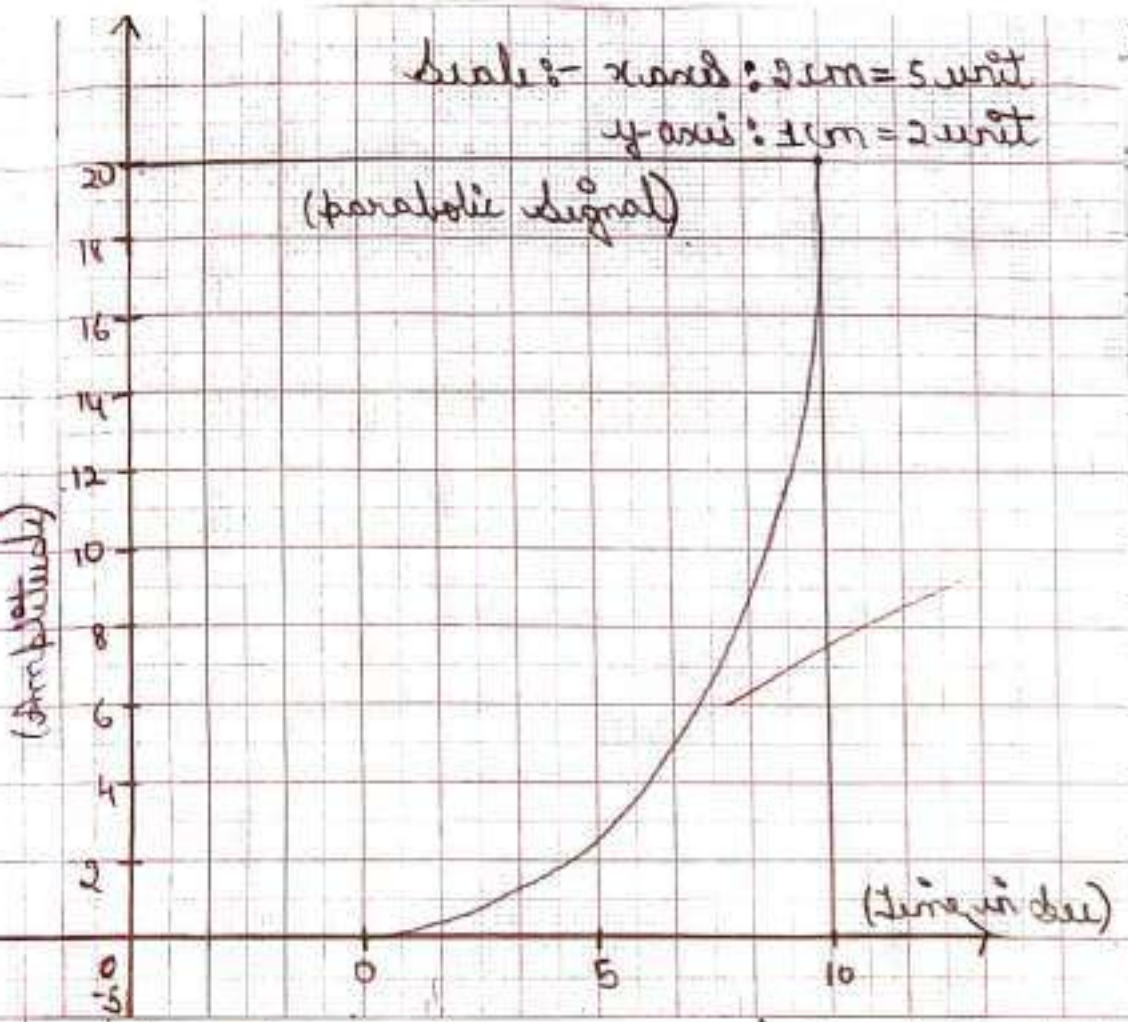
Program:

```
clc;
clear all;
close all;
t = -5:0.01:10;
a = 0.4;
x1 = (a*(t.^2))/2;
x2 = 0;
x = x1.*(t>=0)+x2.*(t<0)
% x = x1.*(t>=1&t<=50);
plot(t,x);
title('parabolic signal');
xlabel('time in sec');
ylabel('Amplitude');
```

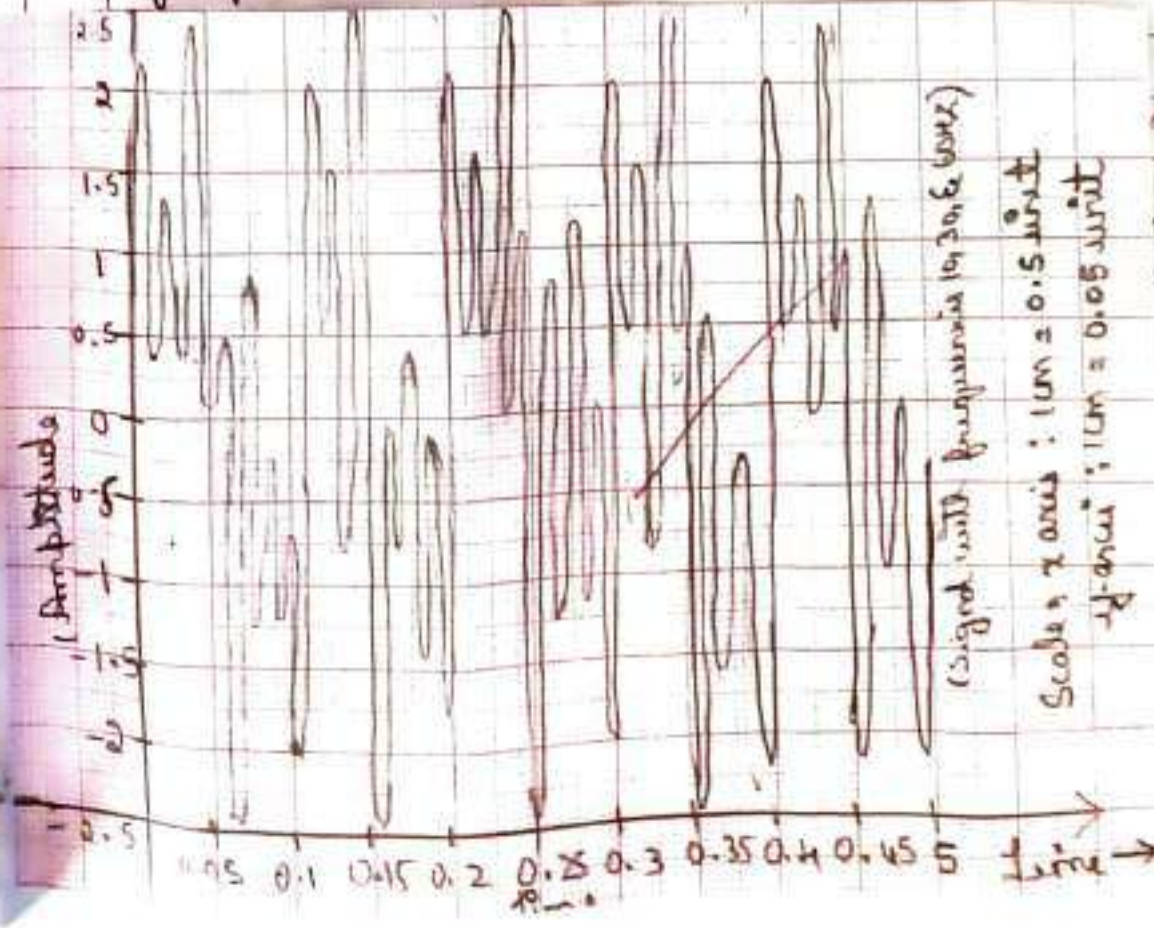
Program :-

```
clc;
clear all;
close all;
t = 0:.001:0.5;
x = sin(2*pi*t*10)+sin(2*pi*t*30)+sin(2*pi*t*60);
plot(t,x);
title('signal with frequencies 10, 30 and 60Hz');
xlabel('time');
ylabel('Amplitude');
```

Scale:- x axis: 2cm = 5 unit
y axis: 1cm = 2 unit



• A mixed frequency sine signal having frequencies 10, 30 and 60Hz.



Generation of parabolic function

A mixed frequency sine signal having the frequencies 10, 30 and 60Hz.

Good (10/10) Sha.. 2/8/21

DON BOSCO INSTITUTE OF TECHNOLOGY
DEPARTMENT OF INFORMATION SCIENCE AND ENGINEERING
ACADEMIC YEAR 2020-21
VII SEMESTER PROJECT BATCH LIST

Batch NO	USN of Team member 1	Name of Team member 1	USN of Team member 2	Name of Team member 2	USN of Team member 3	Name of Team member 3
B1	1DB16IS034	Pavankumar mr	1DB16IS041	Rose king		
B2	1DB17IS036	Shravani pk	1DB17IS020	Lavanya c		
B3	1DB17IS027	Pravallika S	1DB17IS024	Pavithra. J		
B4	1DB17IS010	Ayushya Jaiswal	1DB17IS007	Ankit Anand		
B5	1DB17IS032	Sanya Tabassum	1DB17IS001	Abhigna Bhat	1DB17IS033	Shafiya shaur
B6	1DB17IS018	Kundan Kumar Prasad	1DB17IS035	Shantideepa Samanta		
B7	1DB17IS015	Harshitha B R	1DB17IS044	Vidya S		
B8	1DB17IS003	Aishwarya S	1DB17IS040	Shuruktha B J		
B9	1DB17IS025	Prashant Baghel	1DB17IS039	Shubhodeep Adak		
B10	1DB17IS037	Shubam s uttarkar	1DB17IS043	Supreeth T R		
B11	1DB17IS023	Md Faishal	1DB17IS029	Ramya Anand		
B12	1DB17IS016	Jnanavi	1DB17IS014	Harshita. S. Bhat		
B13	1DB17IS021	Manasa	1DB17IS012	Chandana M		
B14	1DB16IS048	Suhas M	1DB16IS032	Noah Fedrich		
B15	1DB16IS012	Dakshayini	1DB16IS006	Arjun S Gowda		
B16	1DB17IS026	Pratheeksha C Dhanpal	1DB17IS011	Bhoomika S A		
B17	1DB17IS037	Shubam s uttarkar	1DB17IS043	Supreeth T R		
B18	1DB17IS006	Amoga Varsha A	1DB17IS004	Ajit Shety Y		
B19	1DB15IS053	Swaraj	1DB16IS011	Chandra Kiran	1DB16IS025	Manoj kumar O
B20	1DB16IS043	Sanjay	1DB17IS008	Anoopkumar kulkarni		
B21	1DB17IS017	Kishen	1DB17IS030	Ravi kumar		
B22	1DB17IS022	Mandeep	1DB17IS019	Lahari Shekar		
B23	1DB17IS041	S P Vaishnav Bharadwaj	1DB17IS028	Rahul P		

8/10/20
Project Coordinator

HOD-ISE 8/10/2020

HEAD OF THE DEPARTMENT
DEPT OF INFORMATION SCIENCE ENGG.
DON BOSCO INSTITUTE OF TECHNOLOGY
KUMBALAGODU BANGALORE-560074

PRINCIPAL

PRINCIPAL
Don Bosco Institute of Technology
Kumbalagudu, Mysore Road
Bangalore - 560 074

DON BOSCO INSTUTITE OF TECHNOLOGY BANGALORE-74
DEPARTMENT OF INFORMATION SCIENCE &ENGG.

ACADEMIC YEAR: 2020-21
Project Group for VII SEMESTER

Sl..NO	USN	STUDENT NAME	Project Group for VII Semesters	Guide Name
1	1DB16IS034	Pavankumar M R	G1	Shankara Gowda S R
	1DB16IS041	Rose king		
2	1DB17IS036	Shravani P K	G2	Dr.Anasuya N.J
	1DB17IS020	Lavanya C		
3	1DB17IS027	Pravallika S	G3	Shankara Gowda S R
	1DB17IS024	Pavithra. J		
4	1DB17IS010	Ayushya Jaiswal	G4	Asha K H
	1DB17IS007	Ankit Anand		
5	1DB17IS032	Sanya Tabassum	G5	Asha K H
	1DB17IS001	Abhigna Bhat		
	1DB17IS033	Shafiya shaur		
6	1DB17IS018	Kundan Kumar Prasad	G6	Manjula K
	1DB17IS035	Shantideepa Samanta		
7	1DB17IS015	Harshitha B R	G7	Navya Shridhar
	1DB17IS044	Vidya S		
8	1DB17IS003	Aishwarya S	G8	Chaithra A S
	1DB17IS040	Shuruktha B J		
9	1DB17IS025	Prashant Baghel	G9	Yashwini D K
	1DB17IS039	Shubhodeep Adak		
10	1DB17IS037	Shubam s uttarkar	G10	Dr.Anasuya N.J
	1DB17IS043	Supreeth T R		
11	1DB17IS023	Md Faishal	G11	Manjula K
	1DB17IS029	Ramya Anand		
12	1DB17IS016	Jnanavi	G12	Mohan Kumar A V
	1DB17IS014	Harshita. S. Bhat		
13	1DB17IS021	Manasa	G13	Haripriya.C
	1DB17IS012	Chandana M		
14	1DB16IS048	Suhas M	G14	Mohan Kumar A V
	1DB16IS032	Noah Fedrich		
15	1DB16IS012	Dakshayini	G15	Haripriya.C
	1DB16IS006	Arjun S Gowda		
16	1DB17IS026	Pratheeksha C Dhanpal	G16	Yashaswini D K
	1DB17IS011	Bhoomika S A		
17	1DB17IS006	Amoga Varsha A	G17	Dr.M Sel vam
	1DB17IS004	Ajit Shety Y		

18	1DB15IS053	Swaraj	G18	Gowramma G S
	1DB16IS011	Chandra Kiran		
	1DB16IS025	Manoj kumar O		
19	1DB16IS043	Sanjay	G19	Puneeth Kumar P
	1DB17IS008	Anoopkumar kulkarni		
20	1DB17IS017	Kishen	G20	Puneeth Kumar P
	1DB17IS030	Ravi kumar		
21	1DB17IS022	Mandeep	G21	Dr. M Selvam
	1DB17IS019	Lahari Shekar		
22	1DB17IS041	S P Vaishnav Bharadwaj	G22	Gowramma G S
	1DB17IS028	Rahul P		

21/10/20
Project Coordinator

Gowramma 22/10/2020
HOD-ISE
HEAD OF THE DEPARTMENT
DEPT OF INFORMATION SCIENCE ENGG
DON BOSCO INSTITUTE OF TECHNOLOGY
KUMBALAGODU BANGALORE-560074

PRINCIPAL
PRINCIPAL
Don Bosco Institute of Technology
Kumbalagudu, Mysore Road,
Bangalore - 560 074

DON BOSCO INSTUTITE OF TECHNOLOGY BANGALORE-74

DEPARTMENT OF INFORMATION SCIENCE &ENGG.

ACADEMIC YEAR: 2020-21

Project Synopsis Presentation for VII SEMESTER

SL.NO	USN	STUDENT NAME	Project Group for VII Semesters	Date	Timing	Gulde Name	Panel member
1	1DB16IS034	Pavankumar m r	B1	15-12-2020	1.45 pm to 2.00 pm	Shankara Gowda S R	Mohan Kumar A V
	1DB16IS041	Rose king					
2	1DB17IS036	Shravani pk	B2	15-12-2020	2.00 pm to 2.15 pm	Dr.Anasuya N.J	Puneeth Kumar P
	1DB17IS020	Lavanya c					
3	1DB17IS027	Pravallika S	B3	15-12-2020	2.15 pm to 2.30 pm	Shankara Gowda S R	Dr. M Selvam
	1DB17IS024	Pavithra. J					
4	1DB17IS010	Ayushya Jaiswal	B4	15-12-2020	2.30 pm to 2.45 pm	Asha K H	Chaithra A S
	1DB17IS007	Ankit Anand					
5	1DB17IS032	Sanya Tabassum	B5	15-12-2020	2.45 pm to 3.00 pm	Asha K H	Yashashwini D K
	1DB17IS001	Abhigna Bhat					
	1DB17IS033	Shafiya shaur					
6	1DB17IS018	Prasad	B6	15-12-2020	3.00 pm to 3.15 pm	Manjula K	Navya Shridhar
	1DB17IS035	Shantideepa Samanta					
7	1DB17IS015	Harshitha B R	B7	15-12-2020	3.15 pm to 3.30 pm	Navya Shridhar	Yashashwini D K
	1DB17IS044	Vidya S					
8	1DB17IS003	Aishwarya S	B8	15-12-2020	3.30 pm to 3.45 pm	Chaithra A S	Asha K H
	1DB17IS040	Shuruktha B J					
9	1DB17IS025	Prashant Baghel	B9	15-12-2020	3.45 pm to 4.00 pm	Yashashwini D K	Asha K H
	1DB17IS039	Shubhodeep Adak					
10	1DB17IS037	Shubam s uttarkar	B10	15-12-2020	4.00 pm to 4.15 pm	Dr.Anasuya N.J	Puneeth Kumar P
	1DB17IS043	Supreeth T R					
11	1DB17IS023	Md Faishal	B11	15-12-2020	4.15 pm to 4.30 pm	Manjula K	Navya Shridhar
	1DB17IS029	Ramya Anand					

SL.NO	USN	STUDENT NAME	Project Group for VII Semesters	Date	Timing	Gulde Name	Panel member
12	IDB17IS016	Jnanavi	B12	16-12-2020	1.45 pm to 2.00 pm	Mohan Kumar A V	Shankara Gowda S R
	IDB17IS014	Harshita. S. Bhat					
13	IDB17IS021	Manasa	B13	16-12-2020	2.00 pm to 2.15 pm	Haripriya.C	Manjula K
	IDB17IS012	Chandana M					
14	IDB16IS048	Suhas M	B14	16-12-2020	2.15 pm to 2.30 pm	Mohan Kumar A V	Shankara Gowda S R
	IDB16IS032	Noah Fedrich					
15	IDB16IS012	Dakshayini	B15	16-12-2020	2.30 pm to 2.45 pm	Haripriya.C	Manjula K
	IDB16IS006	Arjun S Gowda					
16	IDB17IS026	Dhanpal	B16	16-12-2020	2.45 pm to 3.00 pm	Yashashwini D K	Haripriya.C
	IDB17IS011	Bhoomika S A					
17	IDB17IS006	Amoga Varsha A	B17	16-12-2020	3.00 pm to 3.15 pm	Dr.M Selvam	Haripriya.C
	IDB17IS004	Ajit Shety Y					
18	IDB15IS053	Swaraj	B18	16-12-2020	3.15 pm to 3.30 pm	Gowramma G S	Mohan Kumar A V
	IDB16IS011	Chandra Kiran					
	IDB16IS025	Manoj kumar O					
19	IDB16IS043	Sanjay	B19	16-12-2020	3.30 pm to 3.45 pm	Puneeth Kumar P	Dr.Anasuya N.J
	IDB17IS008	Anoopkumar kulkarni					
20	IDB17IS017	Kishen	B20	16-12-2020	3.45 pm to 4.00 pm	Puneeth Kumar P	Dr.Anasuya N.J
	IDB17IS030	Ravi kumar					
21	IDB17IS022	Mandeep	B21	16-12-2020	4.00 pm to 4.15 pm	Dr. M Selvam	Gowramma G S
	IDB17IS019	Lahari Shekar					
22	IDB17IS041	Bharadwaj	B22	16-12-2020	4.15 pm to 4.30 pm	Gowramma G S	Dr. M Selvam
	IDB17IS028	Rahul P					

Project Coordinator

HOD-ISE 11/12/20

HEAD OF THE DEPARTMENT
DEPT OF INFORMATION SCIENCE ENGG.
DON BOSCO INSTITUTE OF TECHNOLOGY
KUMBALAGODU BANGALORE-560074

DON BOSCO INSTITUTE OF TECHNOLOGY
DEPARTMENT OF INFORMATION SCIENCE AND ENGINEERING
PROJECT TITLE 2020-2021

Batch No	Team member 1	Team member 2	Project Title after synopsis presentation
[illegible]	PAVAN KUMAR MR	[illegible]	USER RECOGNITION OF TWITTER DATA
[illegible]	[illegible]	[illegible]	PLANT DISEASE DETECTION AND PREDICTION ANALYSIS USING MACHINE LEARNING AND IMAGE PROCESSING
[illegible]	PAVITHRA J	PRAVALIKA S	PLANT PLANT LEAF DISEASE DETECTION AND CLASSIFICATION USING CONVENTIONAL MACHINE LEARNING AND DEEP LEARNING
[illegible]	ARPANA JAISWAL	ANKIT ANAND	LANGUAGE TRANSLATION SYSTEM USING MACHINE LEARNING
[illegible]	[illegible]	[illegible]	HEART DISEASE PREDICTION SYSTEM
[illegible]	[illegible]	SANDYA SHARMA	HEART DISEASE PREDICTION SYSTEM
[illegible]	SHANTANU SAMANTA	KUNDAN KUMAR PRASAD	CROP YIELD PREDICTION USING DEEP LEARNING
[illegible]	[illegible]	VIDYA S	AN EFFECTIVE APPROACH FOR FORGERY DETECTION OF MEDICAL IMAGE
[illegible]	[illegible]	SHRUTI HA B	STRESS SPEED INVARIANT FACIAL RECOGNITION SYSTEM
[illegible]	[illegible]	PRASHANT [illegible]	ROAD DAMAGE DETECTION CLASSIFICATION
[illegible]	[illegible]	[illegible]	DRIVER DROWSINESS DETECTION SYSTEM
[illegible]	[illegible]	[illegible]	REAL ESTATE SYSTEM
[illegible]	[illegible]	[illegible]	SENTIMENT ANALYSIS USING MACHINE LEARNING AND PYTHON
[illegible]	[illegible]	[illegible]	CONVOLUTIONAL NEURAL NETWORKS WITH ESM FOR INTRUSION DETECTION
[illegible]	[illegible]	[illegible]	SENTIMENT ANALYSIS ON FACEBOOK
[illegible]	[illegible]	[illegible]	NETWORK INTRUSION DETECTION SYSTEM USING RNN AND DNN
[illegible]	[illegible]	[illegible]	SKIN CANCER CLASSIFICATION USING DEEP LEARNING
[illegible]	[illegible]	[illegible]	ARDUINO BASED OBSTACLE AVOIDING AUTOMATED CAR
[illegible]	[illegible]	[illegible]	[illegible] ARCHITECTURE FOR COVID-19
[illegible]	[illegible]	[illegible]	AUTOMATIC IMAGE CAPTIONING USING MACHINE LEARNING
[illegible]	[illegible]	[illegible]	[illegible] RECOGNITION SYSTEM
[illegible]	[illegible]	[illegible]	[illegible] USING IMAGE PROCESSING
[illegible]	[illegible]	[illegible]	[illegible] FOR BRAIN DISEASE PREDICTION

17/12/20
Coordinator

Gowramma 17/12/20
HOD-ISE

HEAD OF THE DEPARTMENT
DEPT OF INFORMATION SCIENCE ENGG.
DON BOSCO INSTITUTE OF TECHNOLOGY
KUMBALAGODU BANGALORE-560074

DON BOSCO INSTUTITE OF TECHNOLOGY BANGALORE-74

DEPARTMENT OF INFORMATION SCIENCE &ENGG.

ACADEMIC YEAR: 2020-2021

Project Phase 1 Presentation

Sl.. NO	USN	STUDENT NAME	Project Group	Date	Timing	Guide Name	Panel member	Project Coordinator	HOD
1	1DB17IS022	Mandeep	G21	11-01-2021	9.45 am to 10.00 am	Dr. M Selvam	Manjula K	Shankara Gowda S R	Gowramma G S
	1DB17IS019	Lahari Shekar							
2	1DB17IS041	S P Vaishnav Bharadwaj	G22	11-01-2021	10.00 am to 10.15 am	Gowramma G S	Dr. M Selvam	Shankara Gowda S R	Gowramma G S
	1DB17IS028	Rahul P							
3	1DB17IS010	Ayushya Jaiswal	G4	11-01-2021	10.15 am to 10.30 am	Asha K H	Dr. M Selvam	Shankara Gowda S R	Gowramma G S
	1DB17IS007	Ankit Anand							
4	1DB17IS032	Sanya Tabassum	G5	11-01-2021	10.30 am to 10.45 am	Asha K H	Dr. M Selvam	Shankara Gowda S R	Gowramma G S
	1DB17IS001	Abhigna Bhat							
	1DB17IS033	Shafiya shaur							
5	1DB17IS018	Kundan Kumar Prasad	G6	15-01-2021	10.45 am to 11.00 am	Manjula K	Dr. M Selvam	Shankara Gowda S R	Gowramma G S
	1DB17IS035	Shantideepa Samanta							
6	1DB15IS053	Swaraj	G18	11-01-2021	11.00 pm to 11.15 pm	Gowramma G S	Dr. M Selvam	Shankara Gowda S R	Gowramma G S
	1DB16IS011	Chandra Kiran							
	1DB16IS025	Manoj kumar O							
7	1DB17IS015	Harshitha B R	G7	11-01-2021	2.15 pm to 2.30 pm	Navya Shridhar	Dr. M Selvam	Shankara Gowda S R	Gowramma G S
	1DB17IS044	Vidya S							
8	1DB17IS003	Aishwarya S	G8	11-01-2021	2.30 pm to 2.45 pm	Chaithra A S	Dr. M Selvam	Shankara Gowda S R	Gowramma G S
	1DB17IS040	Shuruktha B J							
9	1DB17IS023	Md Faishal	G11	15-01-2021	2.45 pm to 3.00 pm	Manjula K	Dr. M Selvam	Shankara Gowda S R	Gowramma G S
	1DB17IS029	Ramya Anand							
10	1DB17IS016	Jnanavi	G12	16.01.2021	9.30 am to 9.45 am	Mohan Kumar A V	Dr. M Selvam	Shankara Gowda S R	Gowramma G S
	1DB17IS014	Harshita. S. Bhat							

SL NO	USN	STUDENT NAME	Project Group	Date	Timing	Guide Name	Panel member	Project Coordinator	HOD
01	[illegible]	Manasa	G11	16.01.2021	9.45 am to 10.00 am	Haripriya C	Dr. M Selvam	Shankara Gowda S R	Gowramma G S
	[illegible]	C Nandana M							
12	[illegible]	Sahas M	G14	16.01.2021	10.00 am to 10.15 am	Mohan Kumar A V	Dr.Anasuya N.J	Shankara Gowda S R	Gowramma G S
	[illegible]	Nooh Ledesh							
13	[illegible]	Dakshayini	G15	16.01.2021	10.15 am to 10.30 am	Haripriya C	Dr.Anasuya N.J	Shankara Gowda S R	Gowramma G S
	[illegible]	Arjun S Gowda							
04	[illegible]	Pratheeksha C Bhanpal	G16	16.01.2021	10.30 am to 10.45 am	Yashashwini D K	Dr.Anasuya N.J	Shankara Gowda S R	Gowramma G S
	[illegible]	Bhoomika S A							
05	[illegible]	Anagha Varsha A	G17	16.01.2021	10.45 pm to 11.00 pm	Dr M Selvam	Dr.Anasuya N.J	Shankara Gowda S R	Gowramma G S
	[illegible]	Ajay Shetty V							
16	[illegible]	Sanjay	G19	16.01.2021	2.30 pm to 2.45 pm	Puneeth Kumar P	Dr.Anasuya N.J	Shankara Gowda S R	Gowramma G S
	[illegible]	Anoopkumar kulkarni							
17	[illegible]	Keshan	G20	16.01.2021	2.45 pm to 3.00 pm	Puneeth Kumar P	Dr.Anasuya N.J	Shankara Gowda S R	Gowramma G S
	[illegible]	Ravi kumar							
08	[illegible]	Parashkumar m r	G1	16.01.2021	3.00 pm to 3.15 pm	Shankara Gowda S R	Dr.Anasuya N.J	Shankara Gowda S R	Gowramma G S
	[illegible]	Rong kong							
19	[illegible]	Pravallika S	G3	16.01.2021	3.15 pm to 3.30 pm	Shankara Gowda S R	Dr.Anasuya N.J	Shankara Gowda S R	Gowramma G S
	[illegible]	Pavithra J							
20	[illegible]	Prashant Baghel	G9	16.01.2021	3.30 pm to 3.45 pm	Yashashwini D K	Dr.Anasuya N.J	Shankara Gowda S R	Gowramma G S
	[illegible]	Shubhankar Adak							
21	[illegible]	Shubam s uttarkar	G10	16.01.2021	3.45 pm to 4.00 pm	Dr Anasuya N J	Puneeth Kumar P	Shankara Gowda S R	Gowramma G S
	[illegible]	Sajeeth I R							
22	[illegible]	Sharanappa	G2	16.01.2021	4.00 pm to 4.15 pm	Dr Anasuya N J	Mohan Kumar A V	Shankara Gowda S R	Gowramma G S
	[illegible]	Laxmana							

Project Coordinator

HEAD
DEPT OF INFORMATION SCIENCE & Engg.

DON BOSCO INSTITUTE OF TECHNOLOGY, BANGALORE-74
DEPARTMENT OF INFORMATION SCIENCE AND ENGG.
ISE_KSCST (SPP) 44th SERIES: 2020 - 2021

Sl No.	Dept.	Project title	Theme under submission	Guide	Team leader
1	ISE	MELANOMA E-LEARNING MODULE USING DEEP LEARNING	E-Learning Technologies to villages / panchayat levels	Prof. YASHASWINI D K	Ms. PRATHEEKSHA C DHANPAL
2	ISE	ANN ENABLED OBSTACLE AVOIDING AUTOMATED CAR	Automation or new concepts in agriculture (cultivation, raising crops, irrigation etc.)	Dr. M SELVAM	MR AMOGHA VARSHA A
3	ISE	SOLUTION ARCHITECTURE FOR COVID-19	Technologies relevant in the aftermath of COVID-19	Prof. GOWRAMMA GS	Mr. SWARAJ
4	ISE	COVID-19 DETECTION FROM IMAGE PROCESSING USING CNN MODEL	Technologies relevant in the aftermath of COVID-19	Dr.M.SELVAM	MANDEEP R J
5	ISE	AN EFFICIENT CYBER SECURITY FRAMEWORK FOR DETECTING NETWORK ATTACKS USING DEEP LEARNING MODELS	Robotics / 3D printing / Cybar security	Mrs. HARIPRIYA C	Ms. MANASA
6	ISE	PREDICTION AND SOLUTION FOR CROP DISORDER USING MACHINE LEARNING AND IMAGE PROCESSING TECHNIQUES FOR AGRICULTURAL DOMAIN	Automation or new concepts in agriculture (cultivation, raising crops, irrigation etc.)	Dr ANASUYA N J	LAVANYA C
7	ISE	SPEED INVARIANT ASSISTIVE SYSTEM FOR PHYSICALLY DISABLED PEOPLE USING FACIAL RECOGNITION SYSTEM	User friendly devices for aged or physically challenged people	Prof.CHAITHRA A S	AISHWARYA S
8	ISE	AN INTELLIGENT AIR POLLUTANT VEHICLE TRACKER USING GAS SENSOR AND GPS	Newer techniques in Air Pollution control	Mrs. ASHA KH	SHAHYA SHAUR

Sl No.	Dept.	Project title	Theme under submission	Guide	Team leader
9	ISE	LEAF DISEASE DETECTION, CLASSIFICATION AND NUTRITIONAL ANALYSIS IN AGRICULTURAL SECTOR	Automation or new concepts in agriculture (cultivation, raising crops, irrigation etc.)	Mr. SHANKARA GOWDA S R	Ms. PRAVALLIKA S
10	ISE	AN EFFECTIVE APPROACH FOR FORGERY DETECTION OF FAKE COVID - 19 REPORT	Technologies relevant in the aftermath of COVID-19	Prof. NAVYA SHRIDHAR CS	Ms. HARSHITHA B R
11	ISE	DESIGN AND IMPLEMENTATION OF AI AND ML BASED DRIVER ASSIST SYSTEM FOR SAFE COMMUT USING ROBOTIC PROCESS AUTOMATION.	Robotics	Dr. ANASUYA. NJ	SHUBAM S UTTARKAR

HOD
02/02/2021

DEAN& DIRECTOR

Dean & Director
Research and Development
Don Bosco Institute of Technology
Kumbalagodu, Mysore Road
Bangalore - 560 074.

PRINCIPAL

PRINCIPAL
Don Bosco Institute of Technology
Kumbalagudu, Mysore Road
Bangalore - 560 074

DONBOSCO INSTITUTE OF TECHNOLOGY

Department of Information Science & Engineering

VIII Sem, B.E Project Work Phase II Evaluation — Sub Code: 17ISP85

Name Of the Student	Lavanya. C			USN	1DB17IS020	
Project Title	Prediction & Solution for Crop disorder using Machine learning & image processing techniques for Agricultural domain					
Place Of Work						
Mid Evaluation Date	Faculty Members Present					
		HOD	Coordinator	Guide	Panel Member	Average
	Max. Marks	Marks Allotted				
Problem Formulation	10	10	10	10	10	
Communication & Presentation	10	10	10	10	10	
Slides Quality	10	10	10	10	10	
Weekly Progress	10	10	10	09	09	
Questions	10	9	09	09	09	
Toatal A	50	49	49	48	48	
Signature						
Final Evaluation Date		30/6/21	30/6/21	30/6/21	30/06/2021	
	Max. Marks	Marks Allotted				
Results & Demonstration	10	10	10	10	10	
Overall Presentation	10	10	10	10	10	
Questions	5	4	4	03	04	
Weekly Progress	10	10	10	08	09	
Report	10	10	10	08	07	
Conference Presentation	5	5	5	05	05	
Total B	50	49	49	44	46	
Grand Total (A+B)	100	98	98	92	94	96
Signature		13/7/21	13/7/21	13/7/21	13/7/2021	26/7/21

DONBOSCO INSTITUTE OF TECHNOLOGY

Department of Information Science & Engineering

VIII Sem, B.E Project Work Phase II Evaluation — Sub Code: 17ISP85

Name Of the Student	Swaraj			USN	1DB15IS053	
Project Title	Using dynamic models to Showcase Pandemic prevention. Measures empirical Covid-19					
Place Of Work						
Mid Evaluation Date	Faculty Members Present					
		HOD	Coordinator	Guide GSS	Panel Member	Average
	Max. Marks	Marks Allotted				
Problem Formulation	10	10	10	10	10	
Communication & Presentation	10	10	10	10	10	
Slides Quality	10	10	10	10	10	
Weekly Progress	10	10	10	10	10	
Questions	10	10	9	10	09	
Toatal A	50	50	49	50	49	
Signature						
Final Evaluation Date		30/6/21	30/6/21	30/6/21	30/6/21	
	Max. Marks	Marks Allotted				
Results & Demonstration	10	10	10	10	09	
Overall Presentation	10	10	10	10	09	
Questions	5	5	4	5	04	
Weekly Progress	10	10	10	10	10	
Report	10	10	10	10	10	
Conference Presentation	5	5	5	5	05	
Total B	50	50	49	50	47	
Grand Total (A+B)	100	100	98	100	96	99
Signature			30/6/21	23/7/21	13/7/21	26/7/21

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

JnanaSangama, Belagavi – 590014.

"Sentiment Analysis Using Machine Learning and Python"

Degree of Bachelor of Engineering in

INFORMATION SCIENCE & ENGINEERING

For the academic year 2020-2021

SUBMITTED BY:

HARSHITA.S.BHAT

[1DB17IS014]

JNANAVI

[1DB17IS016]

Under the guidance of:

MOHAN KUMAR A V

DON BOSCO INSTITUTE OF TECHNOLOGY

BATCH No	PROJECT MEMBERS	USN
G12	HARSHITA.S.BHAT	1DB17IS014
G12	JNANAVI	1DB17IS016

Proposed Topic: Sentiment Analysis using machine learning and python

Supervisor name: Mohan Kumar A V

Department name: Information Science and Engineering

Abstract :

Sentiment Analysis is a process of computationally analyzing and identifying opinions and judgments from a piece of text. It can understand if a piece of text is positive, negative, or neutral, based on their sentiment analysis. It is also crucial to understand the different types of sentiment analysis to know which one fits the best for purpose. A customer generally reads reviews and does substantial research before purchasing a new product. Analyzing the opinions of millions of customers is more accessible through sentiment analysis. It is essential for market research, monitoring the reputation and progress of the brand and product, etc. It can also judge how loyal your customers are. It is most useful for companies that have to deal with a large number of reviews at once. The tremendous of the overall enormous net has conveyed a present day way of communicating the feelings of individuals. It's additionally a medium with a vast amount of data in which clients can see the assessment of different clients which can be ordered into exceptional entailment summons and are progressively more boom as a key component in decision making. With the increasing rate at which data is created by internet users on various platforms, it becomes necessary to analyze and make use of the data by the defense and other Government Organizations and know the sentiment of the people. Added to it, when something crucial is happening in the nation, it is of paramount importance to decide every step without hurting/violating the sentiments of the people. In the era of Microblogging, which has become quite a popular tool of communication, millions of users share their views and opinions on various day-to-day life issues concerning them directly or indirectly through social media platforms like Twitter, Reddit ,Tumblr, Facebook.

Motivation :

Sentiment Analysis focuses on identifying whether a given piece of text is subjective or objective and if it is subjective, then whether it is negative or positive. Motivation for Sentiment Analysis is two-fold. Both consumers and producers highly value "customer's opinion" about products and services. Use of electronic media is increasing day by day. Time is money or even more valuable than money therefore instead of spending times in reading and figuring out the positivity or negativity of text we can use automated techniques for sentimental analysis. Sentiment Analysis is a hot topic of research and it is used in opinion mining .Example: Analyzing a product based on it's reviews and comments. Discourse elements in text alters the polarity of text. Sentiment Analysis classification should also take discourse elements.This paper takes into consideration: connectives, modals, conditionals and negation in a sentence for polarity detection. In this work bag of word model incorporates discourse information which impacts the sentiment of a sentence.

Literature review :

In general opinion research at the starting of the 20th Century, the science of sentiment analysis and opinion mining has a strong basis. When online product reviews were required and accessible in the middle of 2000, they finally became a major research subject. Just 101 articles on this subject were published in 2005, while almost 5,699 were published in 2015. This means that over a decade sentiment analysis has increased almost 50 times, making it one of the most quickly expanding fields of study in previous years.Throughout the early days of the internet, a person was able to seek feedback from his friends, neighbours and relatives before taking any decision. Opinion sampling, surveys, and general public opinion on its products or services were conducted by organizations. As the World Wide Web has come and particularly with the production and adoration of Web 2.0, where the focus on content generated by users has changed significantly the way the individual expresses his opinion or views. Now people can offer their thoughts, opinions, feelings, blogs, social platforms, forums, and reviews on their own personal web page .Research into the shifts in the subjects found that social networking such as Twitter and Facebook are more focused on the most recent articles from the year 2014 to 2016.

Table- cons and pros of existing methods of sentiment analysis

SENTIMENT CLASSIFICATION APPROACHES	FEATURES/ TECNIQUES	ADVANTAGES	DISADVANTAGES
Machine Learning- Bayesian Networks. Naive Bayes Classification. Maximum Entropy. Neural Networks. Support Vector.	Term presence and frequency . Part of speech information. Negations. Opinion words and phrases.	the ability to adapt and create trained models for specific purposes and contexts.	the low applicability to new data because it is necessary the availability of labeled data that could be costly or even prohibitive.
Lexicon based - Dictionary based approach . Novel Machine Learning Approach. Corpus based approach. Ensemble Approaches.	Manual construction. Corpus-based. Dictionary based.	wider term coverage.	finite number of words in the lexicons and the assignation of a fixed sentiment orientation and score to words.
Hybrid – Machine learning. Lexicon based.	Sentiment lexicon constructed using public resources for initial sentiment. detection Sentiment words as features in machine learning method.	lexicon/learning symbiosis, the detection and measurement of sentiment at the concept level and the lesser sensitivity to changes in topic domain.	Noisy reviews.

Problem formulation/Objective :

- To make a link prediction on given set of data which will help to get the prognostic knowledge of the products.

- To perform sentiment Analysis on reviews of the products to assess the emotions or sentiments of the user toward the project for the future market.

Methodology/ Planning of work:

The sentiment analysis is a complex process that involves 5 different steps to analyze sentiment data. These steps are:

- **Data collection**: the first step of sentiment analysis consists of collecting data from user generated content contained in blogs, forums, social networks. These data are disorganized, expressed in different ways by using different vocabularies, slangs, context of writing etc. Manual analysis is almost impossible. Therefore, text analytics and natural language processing are used to extract and classify;
- **Text preparation**: consists in cleaning the extracted data before analysis. Non-textual contents and contents that are irrelevant for the analysis are identified and eliminated;
- **Sentiment detection**: the extracted sentences of the reviews and opinions are examined. Sentences with subjective expressions (opinions, beliefs and views) are retained and sentences with objective communication (facts, factual information) are discarded;
- **Sentiment classification**: in this step, subjective sentences are classified in positive, negative, good, bad; like, dislike, but classification can be made by using multiple points;
- **Presentation of output**: the main objective of sentiment analysis is to convert unstructured text into meaningful information. When the analysis is finished, the text results are displayed on graphs like pie chart, bar chart and line graphs. Also time can be analysed and can be graphically displayed constructing a sentiment time line with the chosen value (frequency, percentages, and averages) over time.

Facilities required for proposed work :

SOFTWARE REQUIRMENT:

- Language: Python
- OS: Windows 10(64bit)
- Package-Python 3.7
- Software-Anaconda

HARDWARE REQUIRMENT:

- Processor: Above 1.5GHZ
- Hard Disk: 80GB
- RAM: 2GB

Bibliography/References :

[1] Danushka Bollegala, David Weir and John Carroll, "Cross-Domain Sentiment Classification Using a Sentiment Sensitive Thesaurus", *IEEE trans. on knowledge and data engineering*, vol. 25, no. 8, August 2013.

[2] Walaa Medhat, Ahmed Hassan and Hoda Korashy, "Sentiment Analysis Algorithms and Applications: A survey", *Ain Shams Engineering Journal*, 2014.

[3] B. Pang and L. Lee, "A sentimental education: Sentiment analysis using subjectivity analysis using subjectivity summarization based on minimum cuts", *ACL*, 2004.

[4] Alexander Pak and Patrick Paroubek, "Twitter as a corpus for sentiment analysis and opinion mining", *Proceedings of LREC*, 2010.

DON BOSCO INSTITUTE OF TECHNOLOGY

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

JnanaSangama, Belagavi – 590014

"Plant Disease Detection and Prediction Analysis Using Machine Learning and Image Processing"

Degree of Bachelor of Engineering in

INFORMATION SCIENCE & ENGINEERING

For the academic year 2020-2021

SUBMITTED BY:

LAVANYA.C

[1DB17IS020]

SHRAVANI.P.K

[1DB17IS036]

Under the guidance of:

DR. ANASUYA N.J

4/12/2020

DON BOSCO INSTITUTE OF TECHNOLOGY

BATCH No	PROJECT MEMBERS	USN
G2	SHRAVANI P.K	1DB17IS036
G2	LAVANYA.C	1DB17IS020

TITLE:

" Plant disease detection and Prediction Analysis using Machine Learning and Image Processing".

Abstract :

Identification of the plant diseases is the key to preventing the losses in the yield and quantity of the agricultural product. The studies of the plant diseases mean the studies of visually observable patterns seen on the plant. Health monitoring and disease detection on plant is very critical for sustainable agriculture. It is very difficult to monitor the plant diseases manually. It requires tremendous amount of work, expertize in the plant diseases, and also require the excessive processing time. Hence, image processing is used for the detection of plant diseases. Disease detection involves the steps like image acquisition, image pre-processing, image segmentation, feature extraction and classification.Initially the images undergo acquisition, pre-processing, feature extraction and at the final step, the classification result alongside appropriate pesticide or fertilizer and its proportion to be used, which will be displayed on the user interface. We evaluate various image processing-based features: EHD (Edge Histogram Descriptor), HOG and GLCM for automatic detection of plant leaf diseases using machine learning. These features are evaluated on various classification algorithms: SVM, KNN and Decision Tree (DT). Our experimental evaluations indicate that EHD and KNN obtain the best accuracy of 97.5%. We find that KNN used with Euclidean distance formula gives the accurate result.

Motivation :

Traditional method used to detect the diseases requires continuous monitoring

of experts which might be prohibitively expensive in large farms or in some remote villages farmers may have to go long distances to contact experts, this makes consulting experts to very expensive and time consuming. As a result in order to solve these problems we suggest machine learning techniques for a fast, automatic, less expensive and accurate method to detect leaf disease along with right amount of pesticide with specific concentration to be used and also preventive measures.

Literature review :

In this project, they have evaluated various image processing-based features: RGB, SIFT, SURF, ORB, and HOG for automatic detection of diseases using machine learning. These features are evaluated on various machine learning algorithms: SVM, DT, RF, and NB. In most cases, RGB achieves the best performance compared to other features. HOG also performed well for all machine learning algorithms they used. It performs slightly worse than RGB. HOG Since leaves with different kind of diseases may have different shape of spotting and rotten area, this information may be discriminative enough to separate each disease. Apps that capture local features like SIFT, Wind, and ORB tend to do worse than two of the features listed above. SVM with linear kernels achieves the best performance for machine learning methods in most cases except when SURF functions are used where RF is better. RF achieve quite comparable performances for all features that was evaluate where it is only slightly worse than SVM for RGB, HOG, SIFT and ORB, while it is the best for SURF. It is noticed that adding more tree appears to improve the performance of RF and it is interesting to see whether RF could still be improved.

The experimental results indicate that features with color information such as RGB with SVM achieves the best performance. The experiments also indicate that RF could still be improved if the number of trees is larger. While features that contain local object detectors such as SIFT, SURF, and ORB had not performed so well in this task.

Problem formulation/Objective :

- **Methodology/ Plannging of work :**

Image Pre-processing - The images obtained from the camera are subjected to pre-processing for increasing the quality of the images. The pre-processing steps may include color transformation, noise removal, histogram equalization, green masking etc.,

Image Segmentation - Image segmentation are of many types such as clustering, threshold, neural network based and edge based. In this implementation we are using the clustering algorithm called mean shift clustering for image segmentation

Feature extraction - There are many features of an image mainly color, texture and shape.

- **Facilities required for proposed work :**

SOFTWARE REQUIRMENT:

Language: Matlab.

OS: Windows 10(64bit)

IDE : Android Studio , Matlab

Cloud: AWS

HARDWARE REQUIRMENT:

Processor: Above 1.5GHZ

Hard Disk: 80GB

RAM: 2GB

- **Bibliography/References :**

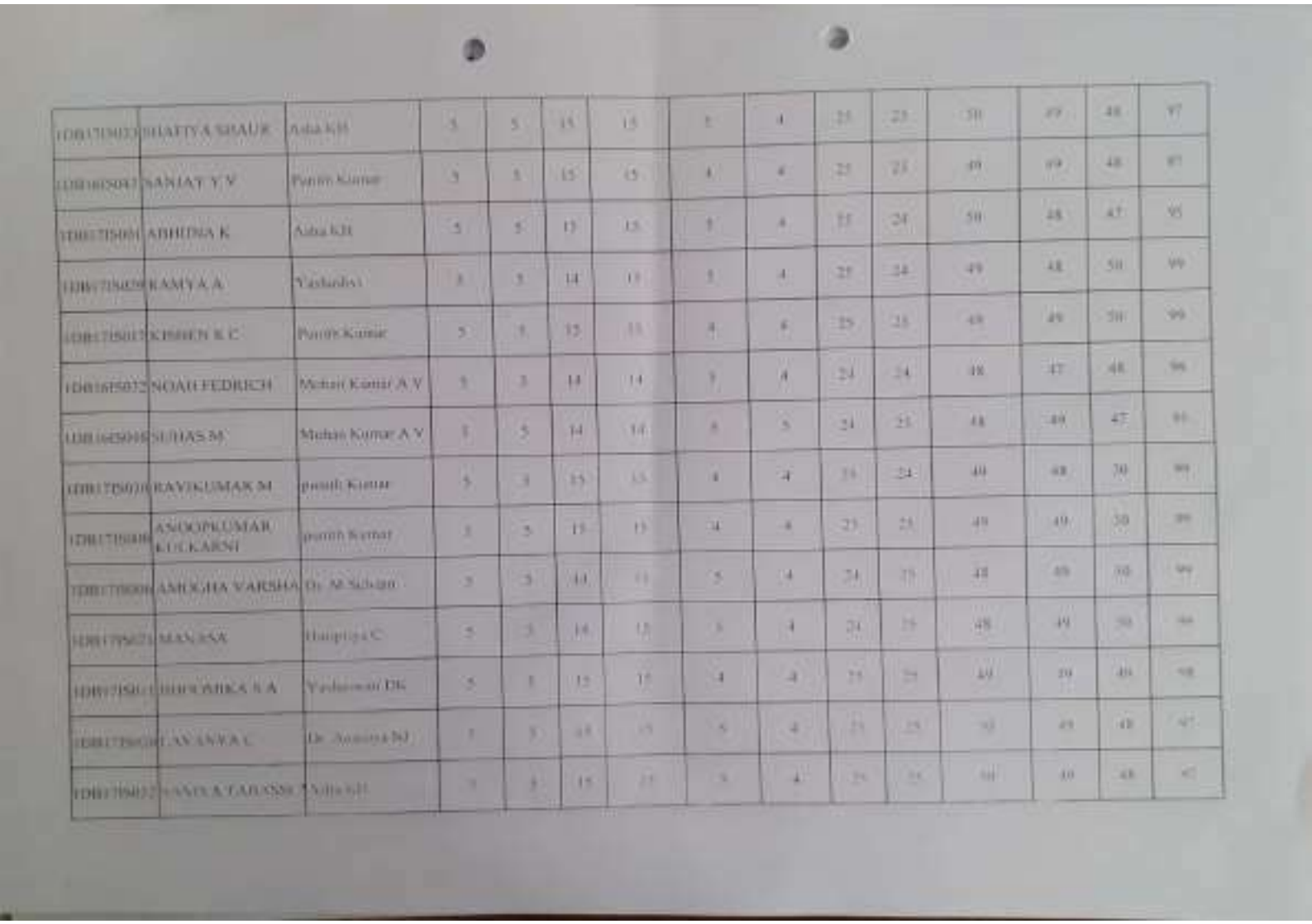
- https://www.tutorialspoint.com/matlab/matlab_quick_guide.htm
- B. S. Kusumo, A. Heryana, O. Mahendra and H. F. Pardede, "Machine Learning

-based for Automatic Detection of Corn-Plant Diseases Using Image Processing," 2018 International Conference on Computer, Control, Informatics and its Applications (IC3INA), Tangerang, Indonesia, 2018, pp. 93-97.

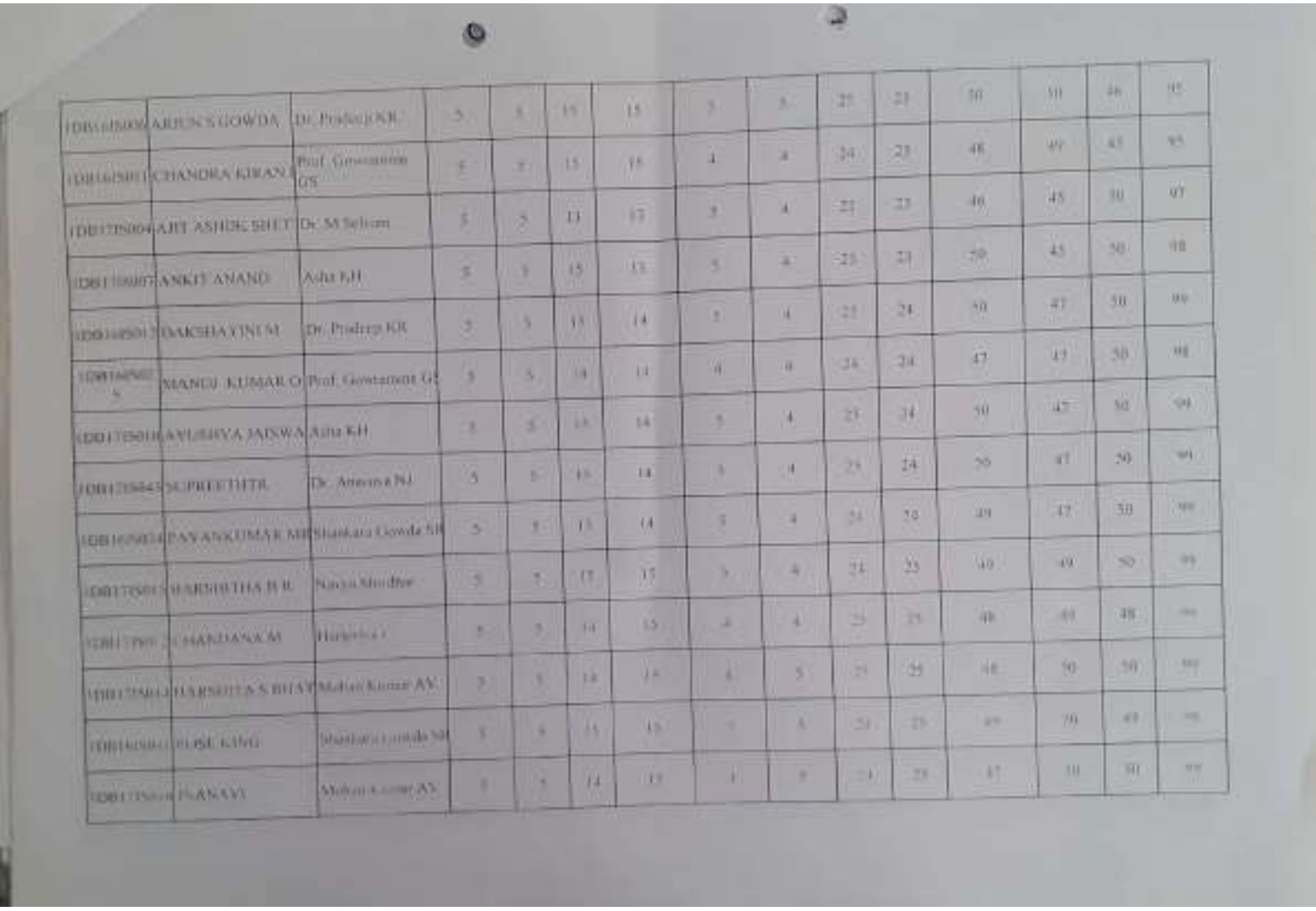
- PLANT DISEASE DETECTION USING MACHINE LEARNING. Shima Ramesh(Asst Professor), Niveditha M, Pooja R, Prasad Bhat N, Shashank N(Research Scholar)Dept of electronics and communication, MVJ college of Engineering, Bengaluru, India. Mr.Ramachandra Hebbar (Senior Scientist,ISRO), Mr P V Vinod (Scientist,ISRO).

Dontbosco institute of Technology
INFORMATION SCIENCE AND ENGINEERING
Technical seminar results april august 2021

USN	Name	Guide Name	Selection of topic relevant to Current industrial trends (5 M)		Presentation (15 M)		Questionnaire (5 M)		Problem Statement+ Area (25)		Evaluation by Guide (Total 50 Marks)	Evaluation by Panel member (Total 50 Marks)	Evaluation by HOD (Total 50 Marks)	Final Marks (50 Marks)
			Guide Marks	Panel Member Marks	Guide Marks	Panel Member Marks	Guide Marks	Panel Member Marks	Guide Marks	Panel Member Marks				
[redacted]	VAISHNAV BHARADWAJ	Gowramma G S	5	5	15	15	4	4	24	24	48	48	50	98
[redacted]	SHUKRUTHA B J	Chaitra A S	5	5	15	15	5	4	24	25	50	49	50	100
[redacted]	SWARAJ	Gowramma G S	5	5	15	15	4	4	23	25	48	49	49	98
[redacted]	AISHWARYA S	Chaitra A S	5	5	15	15	5	4	25	25	50	49	50	100
[redacted]	UDAY A S	Navya Shridhar	5	5	15	15	5	4	24	24	48	49	49	97
[redacted]	PRAVALLIKA S	Shankar Gowda SB	5	5	15	15	4	4	25	25	49	49	50	99
[redacted]	VANITHA J	Shankar Gowda SB	5	5	15	15	4	4	25	25	49	49	50	99
[redacted]	PRATHEEKSHA U DHANPAL	[redacted] DK	5	5	15	15	4	4	25	25	49	49	50	99



1DB1710023	DHATTYA SHAUR	Asha KH	5	5	15	15	5	4	25	25	50	49	48	97
1DB1605047	SANJAT Y.V	Pavan Kumar	5	5	15	15	4	4	25	25	49	49	48	97
1DB1715001	ABHIDNA K	Asha KH	5	5	15	15	5	4	25	24	50	48	47	95
1DB1710029	KAMYA A	Yashoda t	5	5	14	15	5	4	25	24	49	48	50	99
1DB1710017	KISHEN K C	Pavan Kumar	5	5	15	15	4	4	25	25	49	49	50	99
1DB1605032	NOAH FEDRICH	Mohan Kumar A V	5	5	14	14	5	4	24	24	48	47	48	96
1DB1605035	SUHAS M	Mohan Kumar A V	5	5	14	14	5	5	24	25	48	49	47	96
1DB1710021	RAVIKUMAR M	pavan Kumar	5	5	15	15	4	4	24	24	48	48	50	98
1DB1710038	ANOOPKUMAR K U CARNI	pavan Kumar	5	5	15	15	4	4	25	25	49	49	50	99
1DB1710006	ASHOGHA VARSHA	Dr. M Sriram	5	5	14	14	5	4	24	25	48	49	50	99
1DB1710021	MANASA	Haripriya C	5	5	14	15	5	4	24	25	48	49	50	99
1DB1710013	DIVYABHARATHA	Yashaswini DK	5	5	15	15	4	4	25	24	49	49	49	98
1DB1710030	LAVANYA C	Dr. Ananya NJ	5	5	15	15	5	4	25	25	50	49	48	97
1DB1710022	VANYA TARUSH	Vidya KH	5	5	15	15	5	4	24	24	48	49	48	97



1DB[illegible]	ARJUN S GOWDA	Dr. Pradeep KR	5	5	15	15	5	5	25	25	50	50	48	95
1DB[illegible]	CHANDRA KIRAN S	Prof. Government GS	5	5	15	15	4	4	24	25	48	49	45	95
1DB17IS004	AJIT ASHOK SHET	Dr. M Selvam	5	5	13	13	5	4	22	23	46	45	50	97
1DB17IS007	ANKIT ANAND	Asha KH	5	5	15	13	5	4	25	23	50	45	50	98
1DB[illegible]	DAKSHAYINI M	Dr. Pradeep KR	5	5	13	14	5	4	23	24	50	47	50	99
1DB[illegible]	MANOJ KUMAR G	Prof. Government GS	5	5	14	13	4	4	24	24	47	47	50	98
1DB17IS010	AYUSHYA JAISWA	Asha KH	5	5	14	14	5	4	23	24	50	47	50	99
1DB17IS013	SUPRETHTH	Dr. Aparna N J	5	5	15	14	5	4	25	24	50	47	50	99
1DB16IS014	PAVANKUMAR MH	Shankara Gowda SR	5	5	13	14	5	4	24	25	49	47	50	99
1DB17IS015	HARSHITHA B R	Navya Shridhar	5	5	17	17	5	4	24	25	50	49	50	99
1DB17IS[illegible]	HANUMANTH M	Harshita J	5	5	14	15	4	4	25	25	48	49	48	96
1DB17IS[illegible]	HARSHITA S BHAT	Mahan Kumar AV	5	5	14	14	4	5	25	25	48	50	50	99
1DB16IS[illegible]	[illegible]SE KING	Shankara Gowda SR	5	5	15	15	5	5	24	25	49	50	49	98
1DB17IS[illegible]	[illegible]ANAVI	Mahan Kumar AV	5	5	14	13	4	5	24	25	47	50	50	97

10 2

1DB17IS013	SUNDAR KUMAR PRASAD	Mamallu	5	5	14	14	5	4	23	23	46	48	50	98
1DB17IS023	PRASHANT BAGHI	Nagamandala	5	5	14	14	4	4	24	23	47	48	50	98
1DB17IS030	AMARESHEKAR M	Dr. M Selvam	5	5	14	13	4	4	24	23	47	48	50	98
1DB17IS031	SUBRAMANYA UTTARE	Dr. Ameera NJ	5	5	15	14	5	4	23	24	50	47	50	99
1DB17IS032	MD FAISHAL	Yashaswi	5	5	13	13	5	4	24	24	49	48	50	99
1DB17IS033	RAHUL P	Prof. Gowramma G	5	5	15	13	5	5	24	24	49	48	50	99
1DB17IS034	MANDEEP R J	Dr. M Selvam	5	5	13	13	4	4	23	23	45	48	50	95
1DB17IS035	SHRAVANI PK	Dr. Ameera NJ	5	5	15	14	5	4	23	24	50	47	50	99
1DB17IS037	SHANTIDEEPA SAMANTA	Mamallu	5	5	13	13	4	4	24	24	46	50	50	100
1DB17IS038	SHUBHODEEP ADAK	Nagamandala	5	5	14	13	4	4	24	24	47	48	50	98

Gowramma
07/07/2021

yashaswini a.k
07/07/2021

PRINCIPAL
Don Bosco Institute of Technology
Kumbalagodu, Mysore Road,
Bangalore - 560 074.

DON BOSCO INSTITUTE OF TECHNOLOGY, BANGALORE - 74.

DEPARTMENT OF INFORMATION SCIENCE AND ENGINEERING

Final Year Technical Seminar List april-aug 21

Batch No.	No. of Students	USN	Name	Guide Name	Panel Member	Phase1	Phase2	Final
1	1	1DB17IS041	VAISHNAV BHARADWAJ	Gowramma G S	Dr. Pradeep K R	49	50	99
	2	1DB17IS040	SHUKRUTHA B.I	Chaithra A S		49	49	98
2	1	1DB15IS053	SWARAJ	Gowramma G S	Dr. M Selvam	49	50	99
	2	1DB17IS003	AISHWARYA S	Chaithra A S		49	50	99
3	1	1DB17IS044	VIDYA S	Navya Shridhar	Mamatha K, Dr. Pradeep K R	49	49	98
	2	1DB17IS027	PRAVALLIKA S	Shankar Gowda SR		49	49	98
4	1	1DB17IS024	PAVITHRA J	Shankar Gowda SR	Mamatha K , Dr. Pradeep K R	49	49	98
	2	1DB17IS026	PRATHEEKSHA C DHANPAL	Yashaswini DK		49	49	98
5	1	1DB17IS033	SHAFIYA SHAUR	Asha KH	Dr. Pradeep K R	49	49	98
	2	1DB16IS043	SANJAY Y V	Punith Kumar		49	49	98
6	1	1DB17IS001	ABHIJNA K	Asha KH	Prof. Gowramma GS	49	49	98
	2	1DB17IS029	RAMYA A	Yashashvi		49	49	98
7	1	1DB17IS017	KISHEN R C	Punith Kumar	Dr. Pradeep K R	49	49	98
	2	1DB16IS037	NOAH FEDRICH	Mohan Kumar A V		47	47	94
8	1	1DB16IS048	SUHAS M	Mohan Kumar A V	Dr. Anasuya NJ	48	48	96
	2	1DB17IS030	RAVIKUMAR M	punith Kumar		49	49	98

9	1	1DB17IS008	ANOOPKUMAR KULKARNI	punith Kumar	Prof. Gowramma GS	49	49	98
	2	1DB17IS006	AMOGHA VARSHA A	Dr. M Selvam		48	49	97
10	1	1DB17IS021	MANASA	Haripriya C	Dr. M Selvam	49	49	98
	2	1DB17IS011	BHOOMIKA S A	Yashaswini DK		49	49	98
11	1	1DB17IS020	LAVANYA C	Dr. Anasuya NJ	Dr. M Selvam	49	49	98
	2	1DB17IS032	SANIYA TABASSUM	Asha KH		49	49	98
12	1	1DB16IS006	ARJUN S GOWDA	Dr. Pradeep KR	Dr. Anasuya NJ	49	49	98
	2	1DB16IS011	CHANDRA KIRAN B	Prof. Gowramma GS		49	49	98
13	1	1DB17IS004	AJIT ASHOK SHETTY	Dr. M Selvam	Dr. Pradeep KR	48	48	96
	2	1DB17IS007	ANKIT ANAND	Asha KH		48	48	96
14	1	1DB16IS012	DAKSHAYINI M	Dr. Pradeep KR	Dr. Anasuya NJ	48	48	96
	2	1DB16IS025	MANOJ KUMAR O	Prof. Gowramma GS		48	49	97
15	1	1DB17IS010	AYUSHYA JAISWAL	Asha KH	Dr. Pradeep KR	49	49	98
	2	1DB17IS043	SUPREETHTR	Dr. Anasuya NJ		49	49	98
16	1	1DB16IS034	PAVANKUMAR MR	Shankara Gowda SR	Prof. Gowramma GS	48	48	96
	2	1DB17IS015	HARSHITHA B R	Navya Shridhar		49	49	98
17	1	1DB17IS012	DHANDANA M	Haripriya C	Dr. Pradeep KR	48	48	96
	2	1DB17IS014	HARSHITA S BHAT	Mohan Kumar AV		49	49	98
18	1	1DB16IS041	ROSE KING	Shankara Gowda SR	Dr. Pradeep KR	49	49	98
	2	1DB17IS016	JNANAVI	Mohan Kumar AV		49	49	98
19	1	1DB17IS018	KUNDAN KUMAR PRASAD	Mamatha	Dr. Anasuya NJ	49	49	98
	2	1DB17IS025	PRASHANT BAGHEL	Naganandini		47	47	94

20	1	1DB17IS019	LAHARI SHEKAR M	Dr. M Selvam	Dr. Pradeep KR	47	47	94
	2	1DB17IS037	SHUBAM S UTTARKAR	Dr. Anasuya NJ		48	48	96
21	1	1DB17IS023	MD FAISHAL	Yashashvi	Dr. Anasuya NJ	49	49	98
	2	1DB17IS028	RAHUL P	Prof. Gowramma GS		49	49	98
22	1	1DB17IS022	MANDEEP R J	Dr. M Selvam	Dr. Pradeep KR	46	46	92
	2	1DB17IS036	SHRAVANI PR	Dr. Anasuya NJ		49	49	98
23	1	1DB17IS055	SHANTIDEEPA SAMANTA	Mamatha	Prof. Gowramma GS	49	49	98
	2	1DB17IS039	SHUBHODEEP ADAK	Nagananda		48	48	96

Coordinator

HOD

PRINCIPAL

PRINCIPAL
Don Bosco Institute of Technology
Kumbalagodu, Mysore Road,
Bangalore - 560 074.

DON BOSCO INSTITUTE OF TECHNOLOGY BANGALORE-74

DEPARTMENT OF INFORMATION SCIENCE AND ENGINEERING

ACADEMIC YEAR: 2020-2021

Technical seminar tittle 17/15586

NAME	USN	Guide name	Topic name of the tech seminar
Swaraj	1DB15IS053	Mrs Gowramma G S	Motion Detection And Temperature Observing
Arjun S Gowda	1DB16IS006	Dr. Pradeep K.R.	Long Short-term Memory
Chandra Kiran B	1DB16IS011	Prof Gowramma G S	Touch-less Doorbell using embedded system
Dakshayini M	1DB16IS012	Dr.Pradeep KR	Intrusion detection system and its classification
MANOJ KUMAR O	1DB16IS025	GOWRAMMA GS	MEDICAL CHAT BOT USING ML
fernando.noah7@gmail.com	1DB16IS032	Professor Mohan Kumar A V	Classifications in Machine Learning
PAVAN KUMAR MR	1DB16IS034	SHANKARA GOWDA S R	SENTIMENTAL ANAYALSIS ON COVID 19 OUTBREAK
Rose King	1DB16IS041	Shankara Gowda SR	Public Sentiment analysis of twitter data during Covid-19 Outbreak
Sanjay Y V	1DB16IS043	Mr. PUNEETH KUMAR P	DIGITAL IMAGE PROCESSING
Suhas M	1DB16IS048	Mohan Kumar AV	Clustering in Machine Learning
ABHIJNA K	1DB17IS001	Prof. ASHA K H	A Simple CAPTCHA with PHP
AJIT ASHOK SHETTY	1DB17IS004	DR. M Selvam	Responsive Web Design
Amogha Varsha A	1DB17IS006	Dr.M.Selvam	Enterprise Resource Planning
ANKIT ANAND	1DB17IS007	MRS. ASHA K.H.	MACHINE TRANSLATION
Anoopkumar Kulkarni	1DB17IS008	Mr. Puneeth Kumar P	Efficient Way of Web Development Using Python and Flask
Ayushya Jaiswal	1DB17IS010	Asha K.H.	Web Development with Python and Django
CHANDANA M	1DB17IS012	MRS.HARIPRIYA C	WEB SCRAPING
Harshita.S.bhat	1DB17IS014	Mr Mohan Kumar A V	Twitter data sentiment analysis using naive bayes classifier
Harshitha B R	1DB17IS015	Navya Shridhar C S	Virtual Reality
Jnanavi	1DB17IS016	Mohan kumar	Wine quality analysis using machine learning
Kishen RC	1DB17IS017	Prof. Puneeth Kumar P	Deep Learning and It's Applications

Kundan Kumar Prasad	1DB17IS018	Mrs. Mamatha K	Introduction to recurrent neural network
Lahari shekar m	1DB17IS019	Dr.M.Selvam	Image processing with machine learning
Lavanya C	1DB17IS020	Dr. Anasuya N J	Robotics Process Automation
Manasa	1DB17IS021	Mrs. Haripriya C	Covid-19 Prediction and Detection using Deeplearning
Mandeep R J	1DB17IS022	DR.M.SELVAM	Mask R-CNN End-to-End Text Detection and Recogtion
Md Faishal	1DB17IS023	Yashasvi BN	Touchless technology
Pavithra J	1DB17IS024	Shankara Gowda	Plant leaf disease classification and detection using machine learning
prashant baghel	1DB17IS025	Mrs.Naganandini	X-rays, CT- scan and CORADS
PRATHEEKSHA C DHANPAL	1DB17IS026	Prof. Yashaswini D K	Automated Melanoma Recognition in Dermoscopy Images via Deep Residual Networks
Pravallika S	1DB17IS027	Prof. Shankara Gowda S R	Plant Leaf Disease Detection and Classification using Conventional Machine Learning and Deep Learning
Rahul p	1DB17IS028	Prof. Gowramma GS	UI/UX with Dashboard
Ramya.A	1DB17IS029	Yashasvi B N	Criminal tendency detection from facial images
RaviKumar M	1DB17IS030	Mr Puneeth Kumar P	Image segmentation
Ssniya Tabassum	1DB17IS032	Mrs.Asha K H	IOT BASED AIR QUALITY MONITORING SYSTEM
Shantideepa Samanta	1DB17IS035	Mamatha K	Recurrent Neural Network for Time series forecasting
Shravani pk	1DB17IS036	Anasuya NJ	Autoscraper with Robotic Process Automation
SHUBAM S UTTARKAR	1DB17IS037	Dr. Anasuya N J	covid-19 warning system
SHUBHODEEP ADAK	1DB17IS039	NAGANANDANI	Podcast
Supreeth TR	1DB17IS043	Anasuya mam	Patient consultantcy monitoring system
VIDYA S	1DB17IS044	NAVYA SHRIDHAR C S	AUGMENTED REALITY

Yashaswini 16/06/2021
COORDINATOR
YASHASWINI D K

Gowramma 16/06/2021
HOD
GOWRAMMA G S
HEAD OF THE DEPARTMENT
DEPT OF INFORMATION SCIENCE ENGG
DON BOSCO INSTITUTE OF TECHNOLOGY
KUMBALAGODU BANGALORE-560074

16-06-2021
PRINCIPAL
Dr.HEMADRI NAIDU T
PRINCIPAL
Don Bosco Institute of Technology
Kumbalagodu Mysore Road,
Bangalore-560 074.

DON BOSCO INSTITUTE OF TECHNOLOGY, BANGALORE - 74.

DEPARTMENT OF INFORMATION SCIENCE AND ENGINEERING

Final Year Internship List 2020-21

Technical Seminar 2021- 17ISS86 Demo Schdule

Batch No.	No. of Students	USN	Name	Guide Name	Panel Member	Schedaled Date	Timings
1	1	1DB17IS041	VAISHNAV BHARADWAJ	Gowramma G S	Dr. Pradeep K R	10-05-2021	3:30PM to 3:45PM
	2	1DB17IS040	SHUKRUTHA B J	Chaithra A S			3:45PM to 4:00PM
2	1	1DB15IS053	SWARAJ	Gowramma G S	Dr. M Selvam	11-05-2021	3:30PM to 3:45PM
	2	1DB17IS003	AISHWARYA S	Chaithra A S			3:45PM to 4:00PM
3	1	1DB17IS044	VIDYA S	Navya Shridhar	Mamatha K, Dr. Pradeep K R	12-05-2021	3:30PM to 3:45PM
	2	1DB17IS027	PRAVALLIKA S	Shankar Gowda SR			3:45PM to 4:00PM
4	1	1DB17IS024	PAVITHRA J	Shenkar Gowda SR	Mamatha K , Dr. Pradeep K R	13-05-2021	3:30PM to 3:45PM
	2	1DB17IS026	PRATHEEKSHA C DHANPAL	Yashaswini DK			3:45PM to 4:00PM
5	1	1DB17IS033	SHAFIYA SHAUR	Asha KH	Dr. Pradeep K R	14-05-2021	3:30PM to 3:45PM
	2	1DB16IS043	SANJAY Y V	Yashaswi			3:45PM to 4:00PM
6	1	1DB17IS001	ABHIJNA K	Asha KH	Prof. Gowramma GS	15-05-2021	3:30PM to 3:45PM
	2	1DB17IS029	RAMYA A	Yashashvi			3:45PM to 4:00PM

7	1	1DB17IS017	KISHEN R C	Yashaswi	Dr. Pradeep K R	17-05-2021	3:30PM to 3:45PM
	2	1DB16IS032	NOAH FEDRICH	Mohan Kumar A V			3:45PM to 4:00PM
8	1	1DB16IS048	SUHAS M	Mohan Kumar A V	Dr. Anasuya NJ	18-05-2021	3:30PM to 3:45PM
	2	1DB17IS030	RAVIKUMAR M	Mamatha			3:45PM to 4:00PM
9	1	1DB17IS008	ANOOPKUMAR KULKARNI	Mamatha	Prof. Gowramma GS	19-05-2021	3:30PM to 3:45PM
	2	1DB17IS006	AMOGHA VARSHA A	Dr. M Selvam			3:45PM to 4:00PM
10	1	1DB17IS021	MANASA	Haripriya C	Dr. M Selvam	20-05-2021	3:30PM to 3:45PM
	2	1DB17IS011	BHOOMIKA S A	Yashaswini DK			3:45PM to 4:00PM
11	1	1DB17IS020	LAVANYA C	Dr. Anasuya NJ	Dr. M Selvam	21-05-2021	3:30PM to 3:45PM
	2	1DB17IS032	SANIYA TABASSUM	Asha KH			3:45PM to 4:00PM
12	1	1DB16IS006	ARJUN S GOWDA	Dr. Pradeep KR	Dr. Anasuya NJ	22-05-2021	3:30PM to 3:45PM
	2	1DB16IS011	CHANDRA KIRAN B	Prof. Gowramma GS			3:45PM to 4:00PM
13	1	1DB17IS004	AJIT ASHOK SHETTY	Dr. M Selvam	Dr. Pradeep KR	25-05-2021	3:30PM to 3:45PM
	2	1DB17IS007	ANKIT ANAND	Asha KH			3:45PM to 4:00PM
14	1	1DB16IS012	DAKSHAYINI M	Dr. Pradeep KR	Dr. Anasuya NJ	26-05-2021	3:30PM to 3:45PM
	2	1DB16IS025	MANOJ KUMAR O	Prof. Gowramma GS			3:45PM to 4:00PM

15	1	1DB17IS010	AYUSHYA JAISWAL	Asha KH	Dr. Pradeep KR	29-05-2021	3:30PM to 3:45PM
	2	1DB17IS043	SUPREETHTR	Dr. Anasuya NJ			3:45PM to 4:00PM
16	1	1DB18IS034	PAVANKUMAR MR	Shankara Gowda SR	Prof. Gowramma GS	31-05-2021	3:30PM to 3:45PM
	2	1DB17IS015	HARSHITHA B R	Navya Shridhar			3:45PM to 4:00PM
17	1	1DB17IS012	CHANDANA M	Haripriya C	Dr. Pradeep KR	01-06-2021	3:30PM to 3:45PM
	2	1DB17IS014	HARSHITA S BHAT	Mohan Kumar AV			3:45PM to 4:00PM
18	1	1DB16IS041	ROSE KING	Shankara Gowda SR	Dr. Pradeep KR	02-06-2021	3:30PM to 3:45PM
	2	1DB17IS016	JNANAVI	Mohan Kumar AV			3:45PM to 4:00PM
19	1	1DB17IS018	KUNDAN KUMAR PRASAD	Mamatha	Dr. Anasuya NJ	03-06-2021	3:30PM to 3:45PM
	2	1DB17IS025	PRASHANT BAGHEL	Nagunandini			3:45PM to 4:00PM
20	1	1DB17IS019	LAHARI SHEKAR M	Dr. M Selvam	Dr. Pradeep KR	04-06-2021	3:30PM to 3:45PM
	2	1DB17IS037	SHUBAM S UTTARKA	Dr. Anasuya NJ			3:45PM to 4:00PM
21	1	1DB17IS023	MD FAISHAL	Yashashvi	Dr. Anasuya NJ	05-06-2021	3:30PM to 3:45PM
	2	1DB17IS028	RAHUL P	Prof. Gowramma GS			3:45PM to 4:00PM
22	1	1DB17IS022	MANDEEP R J	Dr. M Selvam	Dr. Pradeep KR	06-06-2021	3:30PM to 3:45PM
	2	1DB17IS036	SHRAVANI PK	Dr. Anasuya NJ			3:45PM to 4:00PM

23	1	1DB17IS035	SHANTIDEEPA SAMANTA	Mamatha	Prof. Gowramma GS	07-06-201	3:30PM to 3:45PM
	2	1DB17IS039	SHUBHODEEP ADAK	Nagunandini			3:45PM to 4:00PM

Yashaswini DK
10/05/2021
COORDINATOR
Yashaswini D K

Gowramma
10/05/2021
HOD
Gowramma GS

HEAD OF THE DEPARTMENT
DEPT OF INFORMATION SCIENCE ENGG.
DON BOSCO INSTITUTE OF TECHNOLOGY
KUMBALAGODU BANGALORE 560074

10-05-21
PRINCIPAL
Dr.Hemadri Naidu T
PRINCIPAL
Don Bosco Institute of Technology,
Kumbalagodu, Mysore Road,
Bangalore - 560 074.

Don Bosco Institute of Technology

Department of Computer Science and Engineering

Internship Phase - I Presentation (May 05 to 08 2021)

Batch No	No. of Students	Name	USN	Section	Contact No.	Guide Name	Panel Member	Scheduled Date & Time
1	1	Shallum Israel	1DB17CS131, 1DB17CS139, 1DB17CS120	C Sec	7758821151, 7091140602, 8930034711	Dr. Venugeetha Y	Dr. Thippeswamy G R	Wed 05 May 2021 2 - 2.45 PM
	2	Shubham Anand						
	3	Rohan Jajee						
2	4	Chandana SE	1DB18CS407, 1DB18CS401, 1DB18CS400	C Sec	8884910799 7892380409 9663410387	Prof.Santhosh Kumar G	Prof. Bhaskar R	Wed 05 May 2021 2 - 2.45 PM
	5	Anusha MJ						
	6	Anusha Bai R						
3	7	ARJUN KUMAR KISKU	1DB17CS021, 1DB17CS033, 1DB17CS028	A Sec	7992319557, 9123439209, 8837270415	Prof. Ranjeet Kumar	Prof.Giridhar Gowda	Wed 05 May 2021 2 - 2.45 PM
	8	Dabloo Kumar Yadav						
	9	Bidyut Chaudhury						
4	11	Iftikhar Rehman	1DB16CS016, 1DB16CS061	A Sec	9577357702, 8660621744	Dr Ashok Kumar P S	Prof. Naveen N	Wed 05 May 2021 2 - 2.45 PM
	12	Amith Kumar						
5	13	Komala M	1DB17CS058, 1DB17CS063, 1DB17CS092	B Sec	9449036328, 7795848865	Prof. Bhaskar R	Prof.Santhosh Kumar G	Wed 05 May 2021 3 - 3.45 PM
	14	Lekhana B M						
	15	Pooja J						
6	16	Tejas patil	1DB17CS154, 1DB17CS126, 1DB17CS130	C Sec	9591531969 , 8618475254, 8349333190	Dr. Thippeswamy G R	Dr. Venugeetha Y	Wed 05 May 2021 3 - 3.45 PM
	17	Sanjana kashikar						
	18	Sayon das						
7	19	Vidya.B.T	1DB17CS160, 1DB17CS144, 1DB17CS122	C Sec	8197943239	Prof. Nayana D V	Prof. Rohini B R	Wed 05 May 2021 2 - 2.45 PM
	20	Sowjanya.C						
	21	Sahana.M						

8	22	Soumya S Kamath	1DB17CS142, 1DB17CS145, 1DB17CS166	C Sec	7406313057, 9901044842, 7259228253	Prof. Vinaka Patil	Prof. Yashaswini B M	Wed 05 May 2021 2 - 2.45 PM
	23	Spoorthi BK						
	24	Yasha Srinivas						
9	25	AISHWARYA M	1DB17CS006, 1DB17CS017, 1DB17CS043	A Sec	9108355649	Prof. Rakeebha Thaseen	Prof. Kusuma T	Wed 05 May 2021 2 - 2.45 PM
	26	ANJALI G						
	27	HARSHITHA SRINIVAS						
10	28	Prajwal R Joshi	1db16cs103, 1db16cs184, 1db16cs094	C Sec	9448369640, 9448734293, 9900214406	Dr. Manjunathswamy B E	Prof. Shivakumar Dalali	Wed 05 May 2021 2 - 2.45 PM
	29	Raghav k						
	30	Nishanth AV						
11	31	Varun reddy G	1DB16CS173 1DB16CS082 1DB16CS073	A Sec	7892190427, 7353169385	Dr. Ashok Kumar P S	Prof. Naveen N	Wed 05 May 2021 3 - 3.45 PM
	32	Manjunath S Dhanyal						
	33	Likith Gowda						
12	34	Sharada R	1DB17CS132, 1DB17CS123, 1DB17CS163	C Sec	8722622465, 9535113650, 9663833699	Prof. Rohini B R	Prof. Nayana D V	Wed 05 May 2021 3 - 3.45 PM
	35	Sahana V Karane						
	36	Vinutha M						
13	37	CHAITHRA C	1DB17CS031 1DB17CS036 1DB17CS053	A Sec	7899192934 8971415346 9113826831	Dr.Venugeetha Y	Dr. Thippeswamy G R	Thu 06 May 2021 2 - 2.45 PM
	38	DEEPA G						
	39	KAVYA S R						
14	40	Anusha J	1DB17CS020, 1DB17CS027	A Sec	8971487312, 7022722901	Prof. Hemalatha M	Prof. Thaseen Taj	Wed 05 May 2021 2 - 2.45 PM
	41	Bhoomika R						
15	42	Shrishti Rani	1DB17CS137 1DB17CS129	C Sec	9534130209 8574756435	Prof.Shruthi G	Prof. Sumathi M	Wed 05 May 2021 2 - 2.45 PM
	43	Sarfraz Ahmad						
16	44	Dhanush Kumar S,	1DB17CS038, 1DB17CS044, 1DB17CS048	A Sec	7975872174	Dr.Thippeswamy G R	Dr. Venugeetha Y	Thu 06 May 2021 3 - 3.45 PM
	45	Hemanth Kumar KG						
	46	Jeevan R						
17	47	BIPASHA GHOSAL,	1DB17CS030, 1DB17CS016, 1DB17CS012	A Sec	9046105410, 9955383188, 8660538627	Prof. Ranjeet Kumar	Prof.Giridhar Gowda	Wed 05 May 2021 2 - 2.45 PM
	48	ANIMESH AMAN						
	49	AKSHAY KUMAR						

18	50	Aishwarya Roopghar	1DB17CS007 1DB17CS047	A Sec	7899433020 9740247988	Prof. Rakeebha Thaseen	Prof. Kusuma T	Wed 05 May 2021 2 - 2.45 PM
	51	Jagadambika N						
19	52	AISHWARYA V	1DB17CS008 , 1DB17CS052, 1DB17CS018	A Sec	6374332574, 9663147406, 7042602381	Prof. Thaseen Taj	Prof. Hemalatha M	Wed 05 May 2021 2 - 2.45 PM
	53	KAVANA C						
	54	Antra Munshi						
20	55	Asiya Banu	1DB17CS022, 1DB17CS029, 1DB17CS039	A Sec	6360120343	Prof. Hemalatha M	Prof. Thaseen Taj	Thu 06 May 2021 2 - 2.45 PM
	56	Bindushree H D						
	57	Divyashree N						
21	58	Harshita Gupta	1DB17CS042, 1DB16CS024	A Sec	6394992013	Prof. Umashankar B S	Prof. Revathi K M	Wed 05 May 2021 2 - 2.45 PM
	59	Anusha B J						
22	60	Shubham kumar,	1db16cs153, 1db16cs006	A Sec	7033093539	Prof. Rohini B R	Prof. Nayana D V	Thu 06 May 2021 2 - 2.45 PM
	61	Aditya roshan						
23	62	Akshat Kumar Rai	1DB17CS010 1DB17CS009 1DB17CS054	A Sec	7905854194 7975701859 9019651560	Prof. Thaseen Taj	Prof. Hemalatha M	Thu 06 May 2021 3 - 3.45 PM
	63	Akash A						
	64	Kavyashree G						
24	65	JERIN JOY	1DB17CS049 , 1DB17CS037, 1DB17CS095	A Sec	9036815046	Prof. Ranjeet Kumar	Prof.Giridhar Gowda	Thu 06 May 2021 2 - 2.45 PM
	66	DHANRAJ GOWDA V						
	67	Prashantha J N						
25	68	Keerthana Jagana	1DB17CS055, 1DB17CS051, 1DB17CS023	A Sec	9591132560, 9483107647, 9535110179	Prof. Kusuma T	Prof. Rakeebha Thaseen	Thu 06 May 2021 2 - 2.45 PM
	69	KL Shriya						
	70	Bhavana S Ram						
26	71	Kishan R	1DB18CS402, 1DB17CS128, 1DB18CS404	C Sec	8884831284, 6363075436, 7259823355	Prof. Shruthi G	Prof. Sumathi M	Thu 06 May 2021 2 - 2.45 PM
	72	Sanjay s						
	73	Rajath N Prasad						
27	74	Meghana V	1DB17CS073, 1DB17CS076	B sec	8088001326, 9113815208	Prof. Bhaskar R	Prof.Santhosh Kumar G	Thu 06 May 2021 2 - 2.45 PM
	75	Mukharabeen						

28	76	Shireen Bano A	1DB17CS133 1DB17CS135 1DB17CS119	C Sec	8722412268 9482519342 7665297501	Dr. Manjunathswamy B E	Prof. Shivakumar Dalali	Thu 06 May 2021 2 - 2.45 PM
	77	ShreeVarshini.G						
	78	Riya Chauhan						
29	79	Vinutha k	1DB17CS162 , 1DB17CS140	C Sec	7019419862	Prof. Naveen N	Dr. Ashok Kumar P S	Thu 06 May 2021 2 - 2.45 PM
	80	Shewtha S patil						
30	81	Shubham	1DB17CS138, 1DB17CS118, 1DB17CS114,	C Sec	8003649945, 8340328891	Prof. Rohini B R	Prof. Nayana D V	Thu 06 May 2021 3 - 3.45 PM
	82	Ritik Gupta						
	83	Ravi ranjan kumar						
31	84	Betty B Reichel	1DB16CS188 1DB17CS082 1DB17CS069	B sec	9945359180 7637011921	Prof.Giridhar Gowda	Prof. Umashankar B S	Thu 06 May 2021 3 - 3.45 PM
	85	Nikita Baruah						
	86	Manorama Vishwakarma						
32	87	Aakarshan Basu Bhardwaj	1DB17CS002 1DB17CS032 1DB17CS056	A Sec	7355624638 7702286705 8618739163	Prof. Kusuma T	Prof. Rakeebha Thaseen	Thu 06 May 2021 3 - 3.45 PM
	88	Dabbiru Kashyap Aditya						
	89	Khalid Saifullah						
33	90	K B Pravardhan	1DB17CS050, 1DB16CS019, 1DB17CS034	A Sec	9481056975	Prof. Sheeba S	Prof. Komala D	Thu 06 May 2021 2 - 2.45 PM
	91	Aneesh Pissay						
	92	Darshan G						
34	93	Mithali M	1DB17CS075, 1DB17CS078, 1DB17CS061	B Sec	7899737958	Prof. Yashaswini B M	Prof. Vinaka Patil	Thu 06 May 2021 2 - 2.45 PM
	94	Napa Pavani						
	95	Kusuma A						
35	96	RAJEEV	1DB17CS105, 1DB17CS106, 1DB17CS084	B Sec	7488589510, 9535690207, 9113930857	Prof. Thaseen Taj	Prof. Hemalatha M	Fri 07 May 2021 2 - 2.45 PM
	97	RAJESH						
	98	NISHANT SINHA						
36	99	Nimisha.R	1db17cs083, 1db17cs080, 1db16cs043	B Sec	9902336780, 9945598252, 9845764999	Prof. Yashaswini B M	Prof. Vinaka Patil	Thu 06 May 2021 3 - 3.45 PM
	100	Nayana.S						
	101	Chaitra.P						
37	102	PREETHI BN	1DB17CS097, 1DB17CS098, 1DB17CS112	B Sec	7022476997	Prof. Giridhar Gowda	Prof. Umashankar B S	Fri 07 May 2021 2 - 2.45 PM
	103	PREETHI L						
	104	RANJITH H						

38	105	Raksha N	1DB17CS077 1DB17CS102 1DB17CS100	B Sec	9741488997 8660210411 8105485838	Prof. Shruthi G	Prof. Sumathi M	Thu 06 May 2021 3 - 3.45 PM
	106	R Megha						
	107	Priyanka S P						
39	108	Rakshith L	1DB17CS108, 1DB17CS111, 1DB17CS104	B Sec	8553448136, 8904918219, 8618161755	Prof. Revathi K M	Prof. Umashankar B S	Wed 05 May 2021 2 - 2.45 PM
	109	Ranjan Kumar						
	110	Rajath M.P						
40	111	Suchitra S Raj	1DB17CS147, 1DB17CS159, 1DB17CS124	C Sec	8310992131, 7899529175, 9113618762	Prof. Shivakumar Dalali	Dr. Manjunathswamy B E	Fri 07 May 2021 2 - 2.45 PM
	112	Varshini R						
	113	Samatha						
41	114	Suraksha bhat	1DB17CS150 1DB17CS152 1DB17CS146	C Sec	9916068900 9108572956 9535641238	Prof. Vinaka Patil	Prof. Yashaswini B M	Fri 07 May 2021 2 - 2.45 PM
	115	Swathi V						
	116	Srinivas M						
42	117	Amrutha M	1DB17CS015 1DB17CS013	A Sec	9602434841, 9606635513	Prof. Santhosh Kumar G	Prof. Bhaskar R	Thu 06 May 2021 3 - 3.45 PM
	118	Amit Kumar						
43	119	Prem kumar G	1DB17CS099 1DB17CS085 1DB17CS059	B Sec	9449638086, 8618211138	Prof. Shivakumar Dalali	Dr. Manjunathswamy B E	Thu 06 May 2021 3 - 3.45 PM
	120	Nishanth S						
	121	Kumar Raja M.N						
44	122	Lakshmi Narayan S	1DB17CS062, 1DB17CS064, 1DB17CS094	B Sec	8073313886, 9591805064, 9108551474	Prof. Umashankar B S	Prof. Revathi K M	Thu 06 May 2021 2 - 2.45 PM
	123	M Ruthvik						
	124	Prajwal Deshpande						
45	125	Kunal K	1DB17CS060, 1DB17CS065, 1DB17CS068	B Sec	9035645402, 9632276183 , 8197276769	Dr. Ashok Kumar P S	Prof. Naveen N	Thu 06 May 2021 3 - 3.45 PM
	126	Mahesh V Bhat						
	127	Manoj M						
46	128	BHOOMIKA U	1DB17CS026, 1DB17CS035, 1DB17CS019	A Sec	9611908535	Prof. Sumathi M	Prof. Shruthi G	Fri 07 May 2021 2 - 2.45 PM
	129	DEEKSHA P						
	130	ANUSHA G						
47	131	Tharunsai A	1DB17CS157 1DB17CS156 1DB17CS136	C Sec	8317457134	Prof. Bhaskar R	Prof. Santhosh Kumar G	Fri 07 May 2021 2 - 2.45 PM
	132	Sneha K M						
	133	Tejaswini N						

48	134	Yogesh S Biradar	1DB17CS167, 1DB17CS127, 1DB18CS403	C Sec	8971767667	Prof. Santhosh Kumar G	Prof. Bhaskar R	Fri 07 May 2021 3 - 3.45 PM
	135	Sanjay M G						
	136	Puneeth M						
49	137	Nithin.S	1DB17CS086 1DB17CS091 1DB17CS087	B Sec	8618211138, 9739427108,	Prof. Naveen N	Dr. Ashok Kumar P S	Fri 07 May 2021 2 - 2.45 PM
	138	Pavan Kumar B.N						
	139	Nithish.BR						
50	140	Rakshitha S	1DB17CS109 1DB17CS110	B Sec	9591127592 9902475907	Prof. Nayana D V	Prof. Rohini B R	Thu 06 May 2021 3 - 3.45 PM
	141	Ramyashree K V						
51	142	Ishaan Agarwal	1DB17CS046, 1DB17CS025	A Sec	7980041600, 7014300000	Prof. Yashaswini B M	Prof. Vinaka Patil	Fri 07 May 2021 3 - 3.45 PM
	143	Bhavya Singh						
	144	bhawin patel						
52	145	Manan Singh	1DB15CS078, 1DB15CS069	B Sec	8105455126	Dr. Thippeswamy G R	Dr. Venugeetha Y	Fri 07 May 2021 2 - 2.45 PM
	146	Kanak Sharma						
53	147	Naveen Kumar	1DB17CS079, 1DB17CS088, 1DB17CS116	B Sec	8292804714, 7906735231,	Prof. Kusuma T	Prof. Rakeebha Thaseen	Fri 07 May 2021 2 - 2.45 PM
	148	Nitish Chaurasia						
	149	Rishabh Yadav						
54	150	Pooja J Shetty	1DB17CS093 1DB17CS066 1DB17CS074	B Sec	7619118507, 8850624860, 9980815731	Dr. Venugeetha Y	Dr. Thippeswamy G R	Fri 07 May 2021 3 - 3.45 PM
	151	Manasi Desai						
	152	Meghashree S Nayak						
55	153	Niharika K S	1DB16CS091, 1DB17CS149, 1DB16CS018	A Sec	9980289536, 9535615724, 7903103758	Prof. Revathi K M	Prof. Umashankar B S	Thu 06 May 2021 3 - 3.45 PM
	154	Suman						
	155	Ananya Singh						
56	156	Tejaraj M P	1DB17CS153, 1DB17CS136, 1DB16CS405	C Sec	7259326643	Dr. Manjunathswamy B E	Prof. Shivakumar Dalali	Fri 07 May 2021 3 - 3.45 PM
	157	Shreyas G						
	158	Fathima Shafaq A						
57	159	ABHISHEK B K	1DB17CS003 1DB17CS004 1DB17CS011	A Sec	9901601547	Prof. Shivakumar Dalali	Dr. Manjunathswamy B E	Fri 07 May 2021 2 - 2.45 PM
	160	ADARSH C J						
	161	AKSHAY K						

58	162	Sashank Verma	1DB14CS109, 1DB14CS096, 1DB17 CS024	B Sec	6360089957, 7204048170, 7983018736	Prof. Sumathi M	Prof. Shruthi G	Fri 07 May 2021 3 - 3.45 PM
	163	Rehan Faraz						
59	164	Pravith PV	1DB17CS096 1DB17CS103 1DB17CS071	B Sec	9380364487, 7015310389, 9304343167	Prof. Nayana D V	Prof. Rohini B R	Fri 07 May 2021 3 - 3.45 PM
	165	Rahul Dabas						
	166	MD Hamad khan						
60	167	Souvik Ghosh	1DB17CS143 1DB17CS148 1DB17CS168	C Sec	7980437510, 6201666177, 77809 51191	Prof. Shivakumar Dalali	Dr. Manjunathswamy B E	Sat 08 May 2021 2 - 2.45 PM
	168	Sudhanshu Kumar						
	169	Akhter hussain dar						
61	170	Gautam Jaiswal	1DB17CS041 1DB17CS014 1DB17CS040	A Sec	9110126364, 9916225091, 99025 32483	Prof. Rakeebha Thaseen	Prof. Kusuma T	Fri 07 May 2021 3 - 3.45 PM
	171	Amrutha D A						
	172	Farha Akkalkot						
62	173	Vimal kumar	1DB17CS161, 1DB17CS164, 1DB17CS165	B Sec	7654138539, 9304006284, 7004085490	Prof. Komala D	Prof. Sheeba S	Fri 07 May 2021 2 - 2.45 PM
	174	vishal Kumar saw						
	175	vishal Kumar yadav						
63	176	Manjunath B R	1DB17CS067, 1DB17CS081, 1DB17CS090	B Sec	6360179164	Prof. Naveen N	Dr. Ashok Kumar P S	Fri 07 May 2021 3 - 3.45 PM
	177	Nikhil Kumar						
	178	Pavan B G						
64	179	RAMEYA H	1DB18CS405, 1DB14CS136, 1DB14CS149	C Sec	9113384742, 7026391364, 9591518787	Prof. Sheeba S	Prof. Komala D	Fri 07 May 2021 3 - 3.45 PM
	180	Tejaswani M						
	181	Yogesh C						
65	180	Amith Kumar	1DB16CS016	B Sec	7816022532	Prof.Komala D	Prof. Sheeba S	Sat 08 May 2021 2 - 2.45 PM
	181	Prashantha J N	1DB17CS095					

Internship Details 2020-21

Sl. No.	USN	Student Name	Title	Company Name	Duration (in months)
1	1DB14CS096	REHAN FARAZ	Internet of Thing	AGIMUS TECHNOLOGY	1month
2	1DB14CS109	SHASHANK VERMA	Web Development using CSS framework	X-Ciencia Technologies	1month
3	1DB14CS136	Tejaswini M	Web Development using CSS framework	X-Ciencia Technologies	1month
4	1DB14CS149	YOGESH C	Web development using CSS framework	X-Ciencia Technologies	1month
5	1DB15CS078	MANAN SINGH	Web Development	SmartKnower	2 months
6	1DB16CS006	ADITYA ROSHAN	Trends in telecom technology	BSNL	1month
7	1DB16CS016	AMITH KUMAR	Trends in telecom technology	BSNL	1month
8	1DB16CS018	ANANYA SINGH	Full stack development	Prinston Smart Engineers	1 month
9	1DB16CS019	ANEESH PISSAY	Frontend Reactjs Developer	ProCivil	1 month
10	1DB16CS024	ANUSHA B J	Data Centre Architecture	Abstreams Technology	1 month
11	1DB16CS043	CHAITRA P	Machine Learning Using Python	Tech Fortune Technologies	1.2 Months
12	1DB16CS061	IFTIKAR RAHMAN	Trends In Telecom Technology	BSNL	1 Month
13	1DB16CS073	LIKHITH D GOWDA	Azure Cloud Computing	Verzeo	2 Months
14	1DB16CS082	MANJUNATH S	Azure Cloud Computing	Verzeo	2 Months
15	1DB16CS091	NIHARIKA K S	Data Centre Architecture	Abstreams Technology	1 month
16	1DB16CS094	NISHANTH A V	Azure Cloud Computing	Verzeo	2 Months
17	1DB16CS103	PRAJWAL R JOSHI	WEB DEVELOPMENT	Coding Express	1month
18	1DB16CS153	SHUBHAM KUMAR	Trends in telecom technology	BSNL	1 month
19	1DB16CS173	VARUN REDDY G	Azure Cloud Computing	Verzeo	2 Months
20	1DB16CS184	RAGHAV K	WEB DEVELOPMENT	ICS SOLUTIONS	1 month
21	1DB16CS188	BETTY B REICHEL	Machine leaning using python	Tech fortune technologies	1 month
22	1DB16CS405	FATHIMA SHAFAQ A	Machine Learning using python	Tech fortune technologies	1 month
23	1DB17CS002	AAKARSHAN BASU BHARI	Web Developer Intern	The Sparks Foundation	1 month
24	1DB17CS003	ABHISHEK B K	backend nodejs developer	ProCivil	1 month
25	1DB17CS004	ADARSH C J	Full stack development	Prinston Smart Engineers	1 month
26	1DB17CS006	AISHWARYA M	Web Development Internship	IC Solutions	1 month
27	1DB17CS007	AISHWARYA ROOPGHAR	Python with Machine Learning	AVM Labs	1 month
28	1DB17CS008	AISHWARYA V	Machine learning using python	Tech fortunes	1 month
29	1DB17CS009	AKASH A	full stack development	Prinston Smart Engineers	1 month
30	1DB17CS010	AKSHAT KUMAR RAI	Machine learning using python	Prinston Smart Engineers	1 month
31	1DB17CS011	AKSHAY K	Web Development Internship	IC Solutions	1 month
32	1DB17CS012	AKSHAY KUMAR	Web Development Intern	NTPC	1 month
33	1DB17CS013	AMIT KUMAR	Full Stack Development	Prinston Smart Engineers	1 month
34	1DB17CS014	AMRUTHA D A	Android Development	TCS iON	1 month
35	1DB17CS015	AMRUTHA M	Machine learning using python	Tech Fortune Technologies	1.5 months
36	1DB17CS016	ANIMESH AMAN	web development	Internshala	1.3 months
37	1DB17CS017	ANJALI G	Python with Machine learning	IC Solutions	1 month
38	1DB17CS018	ANTRA MUNSHI	WEB DEVELOPMENT	RANN LAB	1 month
39	1DB17CS019	ANUSHA G	Machine learning using python	Tech Fortune Technologies	1.2 months
40	1DB17CS020	ANUSHA J	Cloud Computing	Appslucent software pvt. Ltd	1 month
41	1DB17CS021	ARJUN KUMAR KISKU	python with machine learning	Verzeo	2 month
42	1DB17CS022	ASIYA BANU	Machine Learning using Python	Tech Fortune Technologies	1.5 months
43	1DB17CS023	BHAVANA S RAM	Machine Learning with Python	AVM Labs	1 month
44	1DB17CS024	BHAVYA SINGH	Android App Development	SPARK Foundation	1 month
45	1DB17CS025	BHAWIN PATEL	web development intern	SPARK foundation	1 month
46	1DB17CS026	BHOOMIKA U	Machine learning using python	Tech Fortune Technologies	6weeks
47	1DB17CS027	BHOOMIKAA R	cloud computing	Appslucent software pvt. Ltd	1month
48	1DB17CS028	BIDYUT CHAUDARY	Full stack web development	Prinston Smart Engineers	1 month
49	1DB17CS029	BINDUSHREE H D	Machine learning using python	Tech fortune technologies	1.5 months
50	1DB17CS030	BIPASHA GHOSAL	1.Research and Development on Python 2.Data Science	1.Codebun Technology Solutions Pvt.Ltd 2.	3 months
51	1DB17CS031	CHAITHRA C	Machine learning using python	X-Ciencia Technologies	1 month
52	1DB17CS032	DABBIRU KASHYAP ADITY	Python with Machine Learning	AVM Labs	1 month
53	1DB17CS033	DABLOO KUMAR YADAV	Python with Machine Learning	Verzeo Edutech Pvt. Ltd.	2 Months
54	1DB17CS034	DARSHAN G	Web development internship	IC Solutions	1 month
55	1DB17CS035	DEEKSHA P	Machine learning using python	Tech Fortune Technologies	6 weeks
56	1DB17CS036	DEEPA G	Machine learning using python	X-Ciencia Technologies	1 month
57	1DB17CS037	DHANRAJ GOWDA V	Python with machine learning	IC Solutions	1 month
58	1DB17CS038	DHANUSH KUMAR S	Python with machine learning	IC Solutions	1 month
59	1DB17CS039	DIVYASHREE N	Machine Learning using python	Tech fortune technologies	6 weeks
60	1DB17CS040	FARHA AKKALKOT	ANDROID DEVELOPMENT	TCS iON	1 month
61	1DB17CS041	GAUTAM JAISWAL	ANDROID DEVELOPMENT	CIMFR,CSIR,DHANBAD	2 months
62	1DB17CS042	HARSHITA GUPTA	Machine Learning using python	Prinston Smart Engineers	1 month
63	1DB17CS043	HARSHITHA SRINIVAS	Web development	Precision Global Services	1 month
64	1DB17CS044	HEMANTH KUMAR K G	Python with machine learning	IC Solutions	1 month
65	1DB17CS046	ISHAAN AGARWAL	ANDROID DEVELOPMENT	The Sparks Foundation	1 month

66	1DB17CS047	JAGADAMBIKA N	Machine Learning with python	AVM labs	1 month
67	1DB17CS048	JEEVAN R	Python - Machine Learning &. Web Development	IC SOLUTIONS	1 month
68	1DB17CS049	JERIN JOY	Python with machine learning	IC Solutions	1 month
69	1DB17CS050	K B PRAVARDHAN	1.Front-End Website development 2. full stack develop	1. IC Solutions 2. Prinston smart engineers	2 month
70	1DB17CS051	KL Shriya	Machine Learning with Python	AVM Labs	1 month
71	1DB17CS052	KAVANA C	Machine learning using python	Tech Fortune Technologies	1.5 months
72	1DB17CS053	KAVYA S R	Machine learning using python	Tech Fortune Technologies	1.5 months
73	1DB17CS054	KAVYASHREE G	website development	IC Solutions	1 month
74	1DB17CS055	KEERTHANA JAGANA	Machine Learning using python	AVM Labs	1 month
75	1DB17CS056	KHALID SAIFULLAH	Web Developer Intern	The Sparks Foundation	1 month
76	1DB17CS058	KOMALA M	1.Machine learning using python 2.Web Developer Inte	1.Tech Fortune Technologies 2.The Sparks	3 month
77	1DB17CS059	KUMAR RAJA M N	Machine learning using python	IC Solutions	1 month
78	1DB17CS060	KUNAL K	Python Django	Gowri Software Solutions	6 weeks
79	1DB17CS061	KUSUMA A	Machine Learning using Python	Tech Fortune	6 weeks
80	1DB17CS062	LAKSHMI NARAYAN S	Python Django	Gowri Software Solutions	6 weeks
81	1DB17CS063	LEKHANA B M	1.Enterprise technology and Data Center architecture 2.	1.Abstream technologies 2.Tech Fortune Te	1.5 Months
82	1DB17CS064	M RUTHVIK	full stack development	prinston smart engineers	1.5 months
83	1DB17CS065	MAHESH V BHAT	full stack development	prinston smart engineers	1.5 months
84	1DB17CS066	MANASI DESAI	Web development-Front end	IC solutions	1month
85	1DB17CS067	MANJUNATHA BR	Machine Learning using Python	Tech Fortune	6weeka
86	1DB17CS068	MANOJ M	Full Stack Development	Prinston Smart Engineers	1month
87	1DB17CS069	MANORAMA VISHWAKAR	Machine learning spark sentiment analysis and movie r	XON Labs	1month
88	1DB17CS071	MD HAMMAD KHAN	Full Stack Development	Prinston Smart Engineers	1 month
89	1DB17CS073	MEGHANA V	Machine learning in python	Techfortune, Prinston	3 month
90	1DB17CS074	MEGHASHREE	Machine learning in python	Techfortune	1.5month
91	1DB17CS075	MITHALI M	Machine Learning using Python	Tech Fortune	6 weeks
92	1DB17CS076	MUKHARABEEN K	web development	tech fortune	6 weeks
93	1DB17CS077	RAKSHA N	Machine learning using Python	Tech Fortune	1.5 month
94	1DB17CS078	NAPA PAVANI	Machine Learning using Python	Tech Fortune	6 weeks
95	1DB17CS079	NAVEEN KUMAR	Full Stack Development	Prinston Smart Engineers	1.5 month
96	1DB17CS080	NAYANA S	machine Learning using Python	Tech Fortune	6 weeks
97	1DB17CS081	NIKHIL GOWDA M	Software Development	XON Labs	1 month
98	1DB17CS082	NIKITA BARUAH	Machine Learning using Python	Prinston Smart Engineers	1 month
99	1DB17CS083	NIMISHA RAJESH	Machine Learning using Python	Tech Fortune	6weeks
100	1DB17CS084	NISHANT SINHA	Unity Game Development intern	Triceria Solutions pvt. ltd.	3 months
101	1DB17CS085	NISHANTH S	1)Trends In Telecom Technology 2) Full Stack Web De	1)BSNL 2) Prinston Smart Engineers	1 month
102	1DB17CS086	NITHIN S	Full stack Web development	prinston smart engineers	1 month
103	1DB17CS087	NITHISH B R	Full stack Web development	prinston smart engineers	1 month
104	1DB17CS088	NITISH CHAURASIA	Full stack Web development	prinston smart engineers	1.5 months
105	1DB17CS090	PAVAN B G	Data Science	SMARTKNOWER	1 month
106	1DB17CS091	PAVAN KUMAR B N	Full stack Web development	prinston smart engineers	1 month
107	1DB17CS092	POOJA J	Enterprise Technology and Data center architecture	Abstream Technology	1 month
108	1DB17CS093	POOJA J SHETTY	Machine learning with python	Tech Fortune	1.5 months
109	1DB17CS094	PRAJWAL DESHPANDE	Python Django	Gowri Software Solutions	6 weeks
110	1DB17CS095	PRASHANTA J N	web development	IC solution	1 month
111	1DB17CS096	PRAVITH P V	web development	prinston smart engineers	1.5
112	1DB17CS097	PREETHI B N	Web development	Tech Fortune	1.5 months
113	1DB17CS098	PREETHI L	Web development	Tech Fortune	1.5 months
114	1DB17CS099	PREM KUMAR G	Web development	Prinston smart engineers	1 month
115	1DB17CS100	PRIYANKA S P	web development	Exposys data labs	1 month
116	1DB17CS102	R MEGHA	Machine learning using python language	Tech Fortune Technologies	1.5 Months
117	1DB17CS103	RAHUL	Full Stack Development	Prinston smart engineers	1.5 month
118	1DB17CS104	RAJATH M P	Full Stack Development	Prinston smart engineers	1.5 month
119	1DB17CS105	RAJEEV KUMAR	Machine learning using python	Prinston Smart Engineers	1 month
120	1DB17CS106	RAJESH	Front-end developer using Angular 10	Stylework Innovation Hub	5 weeks
121	1DB17CS108	RAKSHITH L	Full stack Web development	prinston smart engineers	1 month
122	1DB17CS109	RAKSHITHA S	Web development	Tech Fortune	1.5 Months
123	1DB17CS110	RAMYASHREE K V	Web development	Tech Fortune	1.5 Months
124	1DB17CS111	RANJAN KUMAR	software development using python	AIROBOTICA PVT LTD	1 month
125	1DB17CS112	RANJITH H	Web development	Tech Fortune	1.5 months
126	1DB17CS114	RAVI RANJAN KUMAR	Full stack Web development	prinston smart engineers	1.5 month
127	1DB17CS116	RISHABH YADAV	Cloud Computing	Appslucent private limited	1 month
128	1DB17CS118	RITIK KUMAR GUPTA	Machine learning using python	Tech Fortune Technologies	1.1 months
129	1DB17CS119	RIYA CHAUHAN	Machine learning using python	Tech Fortune Technologies	1.1 months
130	1DB17CS120	ROHAN JAJEE	Full Stack Development	Prinston Smart Engineers	1.1 months
131	1DB17CS122	SAHANA M	Full stack development	Prinston smart engineers	1.1 months
132	1DB17CS123	SAHANA V KARANE	Web development	Sparks Foundation	2 months
133	1DB17CS124	SAMATHA	Machine Learning Using Python Language	Tech Fortune	6 weeks
134	1DB17CS126	SANJANA KASHIKAR	Machine Learning with python	Verzeo	4 weeks
135	1DB17CS127	SANJAY M G	data science and business analytics	TSF	4 weeks

136	1DB17CS128	SANJAY S	Machine Learning Using python Language	Technologics Global pvt. Ltd	1Month
137	1DB17CS129	SARFRAZ AHMAD	Effective Vehicle Plate Recognition using Open CV	TechCiti Software Consulting Pvt. Ltd	1 Month
138	1DB17CS130	SAYON DAS	Machine learning using python	Verzeo	1 month
139	1DB17CS131	SHALLUM	Machine learning and Artificial intelligence	Sparks Foundation and Zebo.ai	1 month
140	1DB17CS132	SHARADA R	Web Developer	The Sparks Foundation	1 month
141	1DB17CS133	SHIREEN BANO A	Software developer Intern	Koskii	1 month
142	1DB17CS135	SHREEVARSHINI G	Machine learning using python	Tech Fortune Technologies	6 weeks
143	1DB17CS136	SHREYAS G	Web Developer	Exposys Data Labs	1month
144	1DB17CS137	SHRISHTI RANI	Disease Prediction using Machine Learning	TechCiti Software Consulting Pvt. Ltd.	1Month
145	1DB17CS138	SHUBHAM	Machine learning using python	Prinston Smart Engineers	1Month
146	1DB17CS139	SHUBHAM ANAND	Cloud computing using Microsoft Azure	Verzeo Edutech Pvt. Ltd	3 Months
147	1DB17CS140	SHWETHA N PATIL	Machine learning using python	Tech Fortune Technologies	1 month
148	1DB17CS141	SNEHA K M	Machine learning using Python	Tech Fortune Technologies	6 weeks
149	1DB17CS142	SOUMYA S KAMATH	Data Science with R	TechFortune Technologies	1 month
150	1DB17CS143	SOUVIK GHOSH	Internship on python	Learntricks	5 weeks
151	1DB17CS144	SOWJANYA C	Enterprise Technology and Data Center Architecture	Abstream Technologies	1 month
152	1DB17CS145	SPOORTHI B K	Data Science with R	TechFortune Technologies	1 month
153	1DB17CS146	SRINIVAS M	Webpage-UI Design(Web Development)	TCS Ion	6 weeks
154	1DB17CS147	SUCHITRA S RAJ	Python with machine learning projects.	Tech fortune technologies	1.5 month
155	1DB17CS148	SUDHANSHU KUMAR	Data center architecture	Abstream technology	1 month
156	1DB17CS149	SUMAN DANDAPAT	Data Science	The Spark Foundation	1.1 month
157	1DB17CS150	SURAKSHA BHAT H S	Web development - front end development	Tech fortune technologies	6 weeks
158	1DB17CS152	SWATHI V	Web development- front end development	Tech Fortune Technologies	6 weeks
159	1DB17CS153	TEJARAJ M P	Web Developer	EXPOSYS DATA LABS	1 month
160	1DB17CS154	TEJAS RAJENDRA PATIL	Machine learning using python	IC SOLUTIONS	4 weeks
161	1DB17CS156	TEJASWINI N	Website Designing	Internship studio	6 weeks
162	1DB17CS157	THARUN SAI A	Web Development	Key Sustainability Pvt Ltd	1 month
163	1DB17CS159	VARSHINI R	Machine learning with python	Tech fortune technologies	6 weeks
164	1DB17CS160	VIDYA BT	Enterprise Technology and Data center architect	Abstream technology	1 month
165	1DB17CS161	VIMAL KUMAR	Python with Machine learning	Verzeo Edutech Pvt. Ltd	2 Months
166	1DB17CS162	VINUTHA K	Machine learning using python	Tech fortune technologies	6weeks
167	1DB17CS163	VINUTHA M	Machine learning using python	Tech fortune technologies	6weeks
168	1DB17CS164	VISHAL KUMAR SAW	Rain Fall prediction System	Prinston Smart Engineers	1 Months
169	1DB17CS165	VISHAL KUMAR YADAV	Rain Fall prediction System	Prinston Smart Engineers	1 Months
170	1DB17CS166	YASHA SRINIVAS	Data Science with R	Tech fortune technologies	6weeks
171	1DB17CS167	YOGESH S BIRADAR	Exploratory data analysis	The Sparks Foundation	1 month
172	1DB17CS167	Yogesh S Biradar	Machine learning	The Sparks Foundation	4 weeks
173	1DB17CS168	AKTHER HUSSAIN DAR	web development	Coding express	2 Months
174	1DB18CS400	ANUSHA BAI R	Machine learning with Python	Technofly solutions	4 weeks
175	1DB18CS401	ANUSHA M J	Machine Learning with Python	Technofly solutions	4 weeks
176	1DB18CS402	KISHAN R	Machine learning using python	Royal elegance technologies	6 weeks
177	1DB18CS403	PUNEETH M	Machine learning using python	Royal elegance technologies	6 weeks
178	1DB18CS404	RAJATH N PRASAD	Machine learning using python	Royal elegance technologies	6 weeks
179	1DB18CS405	RAMEYA H	Machine learning and AI hands on 3projects	Royal elegance technologies	1month
180	1DB18CS407	CHANDANA S E	Machine learning with Python	Technofly Solutions	4 weeks

Don Bosco Institute of Technology, Bangalore

Department of Computer Science & Engineering

VIII Sem. B. E. Internship Seminar Evaluation Sub. Code: 15/17CS84

Name	Anonya Singh			
USN	1DB16CS018			
Internship done at	X-Ciencia Technogies			
Seminar Date	06/05/21	Faculty Members Present		
Time		Coordinator	Guide	Senior Faculty
	Max. Marks	Marks Allotted		
Work done	5	04	04	4
Technical Content	5	04	04	4
Communication	5	03	03	3
Slides Quality	5	03	03	3
Questions	5	04	04	4
Report	25	23	23	23
Total	50	41	41	41
Average		(in words)	forty one	
Signature				

Don Bosco Institute of Technology, Bangalore

Department of Computer Science & Engineering

VIII Sem. B. E. Internship Seminar Evaluation Sub. Code: 15/17CS84

Name	Suman Dandapat			
USN	1DB17CS149			
Internship done at	Spark. foundation, AI Robotica			
Seminar Date	6/5/21	Faculty Members Present		
Time		Coordinator	Guide	Senior Faculty
	Max. Marks	Marks Allotted		
Work done	5	04	04	4
Technical Content	5	04	04	4
Communication	5	04	04	4
Slides Quality	5	05	05	5
Questions	5	04	04	4
Report	25	25	25	25
Total	50	46	46	46
Average		(in words)	forty Six	
Signature				

PRINSTON SMART ENGINEERS

course4job
Empowering and Inspiring future professionals

Akash A
Full Stack Development

Certificate Of Internship

July 31st to Aug 31st, 2020
DBIT, 1DB17CS009

During Internship, Intern was found to be good and disciplined.

www.prinstonsmart.com

Internationally Recognized by WeDir-Tech Contracting ,Trading and Engineering Services W.L.L Doha, Qatar Collaboration Certificate Number :: psec4jwedirtechqatar

innovation.creation

Certificate ID - 21ICS22WBE127

Date - 22/04/2021

Certificate Of Internship

This is to certify that Mr. JEEVAN R (1DB17CS048) student of "Visvesvaraya Technological University" has completed one month Internship on "Website Development" with a grade of " B " in our organization from 15th March 2021 to 16th April 2021 in association with takeiteasy_engineers.

We wish you all the best in your future endeavors.

Anurag Patwary
(Product Manager)

+91 99571 71355 www.icsoln.com 721 JP Nagar 7th Phase, Bengaluru 560078

Wayanamac Education Trust (R)
DON BOSCO INSTITUTE OF TECHNOLOGY
Kumbalgodu, Mysore Road, Bengaluru - 560 074
Ph.: +91-80-28437028 / 29 / 30 Fax: +91-80-28437031
Website: www.dbit.co.in || Email: civil@dbit.co.in

DEPARTMENT OF CIVIL ENGINEERING

Date: 30.11.2021

Circular

Hereby informed to all the faculty members and 7th semester students that the project phase-1 (18CVP78) Review-1 is Scheduled from 8.12.2021 to 11.12.2021& the batches are allotted as per the schedule given below

Sl. NO	Batch No	NAME OF THE STUDENT	USN	PROJECT GUIDE NAME	Date	Day	Time	Duration
1	1	ABHISHEK	1DB18CV001	Dr. R L RAMESH	08-12-2021	Wednesday	2.15 Pm	20 Min
2		NAMITHA K	1DB18CV020					
3		TEJASHWINI C P	1DB18CV041					
4	2	CHANDANA D T	1DB18CV006	Dr. R L RAMESH	08-12-2021	Wednesday	2.45 PM	20 Min
5		GUHA SHEELA	1DB18CV010					
6		HARSHITHA N R	1DB18CV029					
7		YASHAVANTH B K	1DB18CV049					
8	3	JAYANTH N	1DB18CV012	Prof. SAVITHA A L	08-12-2021	Wednesday	3.20 PM	20 Min
9		PRADYUTH SURESH	1DB18CV034					
10		SHEKAR L N	1DB18CV035					
11		SHREESHA MAYYA K S	1DB18CV037					
12	4	SUVARNA	1DB18CV039	Prof. SANDHYA RANI G M	08-12-2021	Wednesday	3.45 PM	20 Min
13		POORVIKA M S	1DB19CV406					
14		SRIHARSHA B	1DB19CV409					
15		SUHAS S A	1DB19CV410					
16	5	PREM SWAROOP	1DB15CV035	Prof. MANJULARANI P	09-12-2021	Thursday	2.15 Pm	20 Min
17		NITHIN B N	1DB17CV408					
18		VIVEK M S	1DB19CV412					
19	6	ADITYA RAJ	1DB16CV002	Prof. RAGHAVENDRA R	09-12-2021	Thursday	2.45 PM	20 Min
20		KOTMEN WALLING	1DB16CV020					
21		VEDANTH P C	1DB17CV049					
22		MANJUNATH T	1DB18CV407					
23	7	SATHISH CHOUDARY	1DB16CV038	Prof. SUSHRA KRAM	09-12-2021	Thursday	3.20 PM	20 Min
24		MOHAMMED YASEEN	1DB18CV412					
25		SACHIN S M	1DB18CV418					
26		RANJAN GOWDA M	1DB18CV428					
27	8	RUDRESH S U	1DB18CV030	Prof. GOBINATH S	09-12-2021	Thursday	3.45 PM	20 Min
28		SHASHIKUMAR V S	1DB18CV034					
29		UBAID AHMAD DAR	1DB18CV043					
30		VANI H K	1DB18CV044					
31	9	MANISH G	1DB18CV017	Prof. GOBINATH S	10-12-2021	Friday	2.15 PM	20 Min
32		SUNIL RATHOD	1DB18CV038					
33		VIJAY MAHANTHESH G R	1DB18CV046					
34		NISHANTH R	1DB19CV404					
35	10	LOKESHWAR M	1DB18CV014	Prof. SUDHA K	10-12-2021	Friday	2.45 PM	20 Min
36		NISCHITHA M S	1DB18CV021					
37		PRASHANTH KUMAR R	1DB18CV035					
38		SANDESH K GOWDA	1DB18CV051					

39	11	DAIVIK M	1DB18CV008	Prof. RAGHAVENDRA D	10-12-2021	Friday	3.20 PM	20 Min
40		RAHUL R	1DB18CV028					
41		CHANDAN E	1DB19CV400					
42		PAVAN	1DB19CV405					
43	12	ATIF A JAMADAR	1DB18CV005	Prof. RAGHAVENDRA N	10-12-2021	Friday	3.45 PM	20 Min
44		MD SHUKRULLA KHAN	1DB18CV019					
45		OBALANAYAK M S	1DB18CV032					
46		AKASH R S	1DB18CV050					
47	13	ANNAPOORNA S	1DB18CV003	Prof. SANDHYA RANI G M	11-12-2021	Saturday	2.15 PM	20 Min
48		MAHENDRA S	1DB18CV015					
49		THARUN H C	1DB18CV042					
50		CHANDINI B S	1DB19CV401					
51	14	RACHANA R	1DB18CV027	Prof. SUDHA K	11-12-2021	Saturday	2.45 PM	20 Min
52		N K MURALIDHARA	1DB19CV402					
53		SATHISH T C	1DB19CV406					
54		SUMAN C M	1DB19CV411					
55	15	MAHASWINI R K	1DB18CV016	Prof. MANJULARANI P	11-12-2021	Saturday	3.30 PM	20 Min
56		TAWSEEF AHMAD MALLAH	1DB18CV040					
57		MOHAMMED JAWAD	1DB19CV403					
58		PREETHI K	1DB19CV407					

Project coordinator

HOD 9/12/21

Head of the Department
Department of Civil Engineering
Don Bosco Institute of Technology
Bengalu... 560074

Principal 9-12-2021

PRINCIPAL
Don Bosco Institute of Technology
Kumbalagodu, Mysore Road,
Bangalore - 560 074.

Don Bosco Institute of Technology
Kumbalgodu, Bengaluru – 560074
Department of Civil Engineering

8th sem Project Phase-II, Review Schedule 14.07.2021

SL.NO	Batch No	NAME OF THE STUDENT	USN	PROJECT TITLE	Guide Name	Date	Day	Time	Duration
1	1	UDAY KUMAR R S	1DB17CV048	A STUDY ON MICRO STRUCTURE OF HYBRID FIBER REINFORCED SELF COMPACTING CONCRETE WITH RELEVANCE TO THERMAL CYCLE	PROF. RAGHAVENDRA D	19-07-2021	Monday	10.00 am	30 min
2		S V RAHUL REDDY	1DB17CV037						
3		GAGANDEEP C G	1DB17CV013						
4		KAVYASHREE K P	1DB17CV019						
5	2	POOJA S	1DB17CV032	EXPERIMENTAL STUDY ON SELF COMPACTING CONCRETE WHEN SUBJECTED TO ELEVATED TEMPERATURE	PROF. RAGHAVENDRA D	19-07-2021	Monday	10.30 am	30 min
6		SREENIVAS R	1DB17CV045						
7		ARUN T N	1DB17CV003						
8		PRUTHVI RAJ D L	1DB17CV034						
9	3	CHETHAN S	1DB17CV009	A STUDY ON DESIGN AND ANALYSIS OF AN IRREGULAR STRUCTURE	PROF. BUSHRA ERAM	19-07-2021	Monday	11.00 am	30 min
10		THEJAS R L	1DB17CV047						
11		DARSHAN A C	1DB17CV010						
12		SURYANAIK M	1DB17CV046						
13	4	ASHWAJEET	1DB17CV004	EXPERIMENTAL INVESTIGATION ON PARTIAL REPLACEMENT OF FINE AGGREGATES BY SILLICO MANGANESE	DR. R.L.RAMESH	19-07-2021	Monday	11.30 am	30 min
14		SACHIN S RATHOD	1DB17CV039						
15		JAMSHEER ALI	1DB18CV402						
16		SHARANABASAPPA	1DB18CV420						
17	5	JAYANTH S	1DB18CV403	WATER QUILAITY ASSESSMENT FOR KUMBALAGODU LAKE	PROF. GOBINATH S	19-07-2021	Monday	12.00 pm	30 min
18		SAI ESHWARI G K	1DB17CV040						
19		HARSHITH D	1DB18CV401						
20		LINGARAJU N	1DB18CV404						
21	6	PRAJWAL S DESAI	1DB18CV415	INFLUENCE OF GRANITE SLURRY ON THE DURABILITY OF EARTH BLOCKS & ITS COMPARISON TO FER-ROCK AS A BINDING MATERIAL	PROF. GOBINATH S	19-07-2021	Monday	12.30 pm	30 min
22		PRAMOD M	1DB18CV416						
23		SATHYABHUSHAN P	1DB18CV419						
24		MANJUNATH GL	1DB18CV406						
25	7	ABBU HASHIM ALI	1DB17CV001	ANALYSIS OF SLIDING ISOLATION SYSTEM FOR BUILDING SUBJECTED TO EARTHQUAKE FORCE		19-07-2021	Monday	01.00 pm	30 min
26		ATUL KUMAR PRAJAPATHI	1DB17CV005						
27		NAVEEN G NAIK	1DB17CV028						
28		ARUN KUMAR	1DB17CV002						
29	8	SHRUTI	1DB18CV422	ANALYSIS AND DESIGN OF BASE ISOLATION USING NATURAL RUBBER BEARING FOR RC FRAMED STRUCTURES		19-07-2021	Monday	02.00 pm	30 min
30		JAYASHREE M	1DB17CV018						
31		POOJA R	1DB17CV031						
32		SINDHU D	1DB17CV043						
33	9	DEEPAK C	1DB16CV014	INVESTIGATION AND TREATMENT OF INDUSTRY EFFLUENT OF PEPSI INDUSTRY MYSORE ROAD.	PROF. SUDHA K	19-07-2021	Monday	02.30 pm	30 min
34		JAGAN GOWDA.R	1DB16CV062						
35		SINCHANA C	1DB17CV042						
36		NITHIN KUMAR .M	1DB18CV414						
37	10	ASHWINI	1DB16CV061	NUMERICAL ANALYSIS ON STABILIZATION OF SOIL SLOPES BY SOIL NAILING TECHNIQUE	PROF.MANJULARANI P	19-07-2021	Monday	03.00 pm	30 min
38		NISARGA	1DB17CV030						
39		SHIVRAJ	1DB18CV421						
40		SADIQ MOHAMMED	1DB18CV411						
41	11	CHANDAN. D	1DB17CV007	STUDY THE CHARACTERSTICS OF SEWAGE TREATMENT PLANT	PROF. SADASHIVAIAH	19-07-2021	Monday	3.30 pm	30 min
42		NAGESHA.MC	1DB17CV026						
43		LIKITH KUMAR. D	1DB17CV020						
44		SACHIN. MB	1DB18CV417						

45	12	DIVYA. M.P	1DB17CV011	USE OF RECYCLED WASTE PLASTIC MATERIAL IN CONCRETE BY PARTIAL REPLACEMENT OF SAND	PROF. SADASHIVAIAH	19-07-2021	Monday	04.00 pm	30 min
46		HARISH PATEL KN	1DB18CV400						
47		MANJUNATH D.S	1DB18CV405						
48		MANU.M	1DB18CV410						
49	13	GUNAPRIYA N	1DB17CV015	"PLANNING & DEVELOPMENT OF INTEGRATED TOWNSHIPS - THE VISION OF WHOLESOME AMBIENCE IN PANDEMIC SITUATIONS LIKE COVID - 19"	PROF. KIRAN D N	20-07-2021	Tuesday	10.00 am	30 min
50		SPOORTHI S	1DB17CV044						
51		BHAVANA C B	1DB18CV424						
52		NAVEEN S	1DB16CV029						
53	14	KRISHNA PRASAD	1DB15CV023	STUDY ON CAUSES OF CRACKS AND ITS PREVENTIVE MEASURES IN CONCRETE STRUCTURES	PROF. BUSHRA ERAM	20-07-2021	Tuesday	10.30 am	30 min
54		SHREEKANTH DODAMANI	1DB15CV043						
55		PUNEETH GOWDA	1DB15CV037						
56		HEMANTH J R	1DB15CV020						
57	15	SHASHANK.K	1DB17CV041	"COMPARATIVE STUDY OF MULTISTOREY RESIDENTIAL BUILDING USING STATIC AND SEISMIC ANALYSIS" (DESIGN AND SEISMIC ANALYSIS BY	PROF. SUDHA. K	20-07-2021	Tuesday	11.00 am	30 min
58		MADHU M.M	1DB17CV023						
59		CHARANRAJU N.S	1DB17CV008						
60		NIKHIL.B.T	1DB17CV029						
61	16	LIKITH KUMAR Y	1DB17CV021	STRENGTH & BEHAVIOUR OF GEO POLYMER CONCRETE	Dr. R L RAMESH	20-07-2021	Tuesday	11.30 am	30 min
62		SACHIN R	1DB17CV038						
63		SHADAKSHARI B M	1DB18CV426						
64		MANOJ D H	1DB18CV408						
65	17	SABITH RASHID	1DB17CV050	ANALYSIS & DESIGN OF FILTER FOR WASTE WATER TREATMENT	Dr. MPS	20-07-2021	Tuesday	12.00 pm	30 min
66		MANOJ KUMAR S	1DB18CV409						
67		MUKESH NAG	1DB17CV025						

Wayanamac Education Trust®
DON BOSCO INSTITUTE OF TECHNOLOGY
Kumbalgodu, Mysore road, Bengaluru -74
Ph: +91- 080 – 28437028 / 29 / 30 Fax: +91 - 080 – 28437031
Web site: www.dbit.co.in II Email:civil@dbit.co.in

DEPARTMENT OF CIVIL ENGINEERING

18CVP78: PROJECT PHASE-1 EVALUATION

Semester:7 **Academic Year: 2020-21**

Name:	LIKITH KUMAR.Y	**USN:**	1DB17CV021
	SACHIN R		1DB17CV038
	MANOJ DH		1DB18CV403
	SHADAKSHARI BM		1DB18CV426
Title:	Strength of Geo Polymer Concrete using Construction demolition waste	**Batch No**	16
Guide:	DR. RL RAMESH (HOD)	**Designation:**	

AWARD OF MARKS

SLNo.	Parameters	Max. Marks	17CV021	17CV038	18CV403	18CV426
	(a) Presentation-1					
1.	Problem Identification	10	09	09	09	09
2	Literature Survey	10	09	09	09	09
3	Objectives	05	05	05	05	05
4	Methodology	10	08	08	08	08
5	Presentation	15	12	AB	12	12
	Total Marks (a)	**50**	43	31	43	43
	(b) Presentation -2					
6	Progress in work	25	25	25	25	25
7	Submission of Report	15	15	15	15	15
8	Presentation	10	08	AB	07	07
	Total Marks (b)	**50**	48	AB 40	47	47
	Grand Total Marks (a)+(b)	**(a)+(b) 100**	91	71	90	90
Remarks						

Name & Signature of Project evaluator

Raghavendra B

R. L. Ramesh
HOD

2017 Batch

Wayanamac Education Trust®

DON BOSCO INSTITUTE OF TECHNOLOGY

Kumbalgodu, Mysore road, Bengaluru -74
Ph: +91 080 - 28437028 / 29 / 30 Fax: +91 080 - 28437031
Web site: www.dbit.co.in || Emailceivil@dbit.co.in

DEPARTMENT OF CIVIL ENGINEERING

17CVP78: PROJECT PHASE-1 EVALUATION

Semester:7 **Academic Year: 2020-21**

Name:	Arun TN	**USN:**	1DB17CV003		
	Pooja. S		1DB17CV032		
	Prithvi Raj D.L		1DB17CV034		
	Saseendran R		1DB17CV045		
Title:	The experimental study of self compacting concrete subjected to elevated temperature			**Batch No**	02
Guide:	Prof Raghavendra. D	**Designation:**	Asst professor		

AWARD OF MARKS

Sl.No.	Parameters	Max. Marks	17CV003	17CV032	17CV034	17CV045
	(a) Presentation-1					
1.	Problem Identification	10	09	09	09	09
2	Literature Survey	10	10	10	10	10
3	Objectives	05	05	05	05	05
4	Methodology	10	09	09	09	09
5	Presentation	15	11	12	12	14
	Total Marks (a)	**50**	44	45	45	47
	(b) Presentation -2					
6	Progress in work	25	24	24	24	24
7	Submission of Report	15	15	15	15	15
8	Presentation	10	08	09	08	09
	Total Marks (b)	**50**	47	48	47	48
	Grand Total Marks (a)+(b)	**(a)+(b) 100**	91	93	92	95
Remarks						

Name & Signature of Project evaluator

Raghavendra. D

Raghavendra. D

HOD

Wayanamac Education Trust®
DON BOSCO INSTITUTE OF TECHNOLOGY
Kumbalgodu, Mysore road, Bengaluru -74
Ph: +91- 080 – 28437028 / 29 / 30 Fax: +91 - 080 – 28437031
Web site: www.dbit.co.in II Email:civil@dbit.co.in

DEPARTMENT OF CIVIL ENGINEERING

17CVP78: PROJECT PHASE-1 EVALUATION

Semester:7 **Academic Year: 2020-21**

Name:	Manjunath.G.L Poojwal S Desai Pramod M Sathya Bhushan.P	**USN:**	1DB18CV406 1DB18CV415 1DB18CV416 1DB18CV419
Title:	Influence of granite on the durability earth blocks and its compresion to ferrock as a binding material	**Batch No**	6
Guide:	Grobinath sir	**Designation:**	Assistant Professor

AWARD OF MARKS

(a) Presentation-1						
Sl.No.	**Parameters**	**Max. Marks**	1	2	3	4
			406	415	416	419
1.	Problem Identification	10	10	10	10	10
2	Literature Survey	10	10	10	10	10
3	Objectives	05	05	05	05	05
4	Methodology	10	10	10	10	10
5	Presentation & VIVA 10+5	15	05	10	05	05
	Total Marks (a)	**50**	40	45	40	40
(b) Presentation -2						
6	Progress in work	25	25	25	25	25
7	Submission of Report	15	15	15	15	15
8	Presentation	10	07	09	07	08
	Total Marks (b)	**50**	47	49	47	48
	Grand Total Marks (a)+(b)	**(a)+(b) 100**	87	94	87	88
Remarks						

Name & Signature of Project evaluator

R.L.Ramesh G
(Dr. R.L. KAMESH)

R.L.Ramesh G
HOD

Wayanamac Education Trust
DON BOSCO INSTITUTE OF TECHNOLOGY
Kumbalgodu, Mysore road, Bengaluru -74
Ph: +91 080 - 28437028 / 29 / 30 Fax: +91 080 - 28437031
Web site: www.dbit.co.in II Email:civil@dbit.co.in

DEPARTMENT OF CIVIL ENGINEERING

17CVP78: PROJECT PHASE-1 EVALUATION

Semester:7 **Academic Year: 2020-21**

Name:	ABBO HASHIM ALI	**USN:**	1DB17CV001
	ATUL KUMAR PRAJAPATHI		1DB17CV005
	NAVEEN G NAIK		1DB17CV028
	ARUN KUMAR		1DB17CV002
Title:	ANALYSIS OF SLIDING BASE ISOLATION SYSTEM FOR STRUCTURES SUBJECTED TO EARTHQUAKE FORCE	**Batch No**	7
Guide:	Prof. SANTHOSH H.P	**Designation:**	ASSISTANT PROFESSOR

AWARD OF MARKS

SLNo.	Parameters	Max. Marks	17CV001	17CV002	17CV005	17CV028
	(a) Presentation-1					
1.	Problem Identification	10	9	9	9	9
2	Literature Survey	10	10	10	10	10
3	Objectives	05	05	05	05	05
4	Methodology	10	10	10	10	10
5	Presentation	15	14	13	14	13
	Total Marks (a)	**50**	48	47	48	47
	(b) Presentation -2					
6	Progress in work	25	25	25	25	25
7	Submission of Report	15	15	15	15	15
8	Presentation	10	10	10	09	09
	Total Marks (b)	**50**	50	50	49	49
	Grand Total Marks (a)+(b)	**(a)+(b) 100**	98	97	97	96
Remarks						

Name & Signature of Project evaluator

Dr. M.P.S.REDDY

21/9/2020

R.L. Ramesh

HOD

Don Bosco Institute of Technology, Bangalore

(Affiliated to VTU, Approved by AICTE and Accredited by NAAC)
Kumbalagodu, Mysore Road, Bangalore-560 074

Department of Civil Engineering

Project Phase-II Evaluation Sheet

Date: __/__/____

Title of the Project: "COMPARATIVE STUDY OF MULTISTOREY RESIDENTIAL BUILDING USING STATIC AND SEISMIC ANALYSIS"

Sl	Evaluation Criteria		Max Marks	Name: SHASHANK.K	Name: MADHU.M.M	Name: CHARANRAJU N.S	Name: NIKHIL.B.T
				USN: 1DB17CV041	USN: 1DB17CV023	USN: 1DB17CV008	USN: 1DB17CV029
	Significance and Relevance						
1	a.	Objectives – Define, Analyze and Explain goals	20	20	20	20	20
	b.	Activities – Work carried out	20	20	20	20	20
		(a+b)	**40**	40	40	40	40
	Presentation						
2	a.	Background, Introduction and Overview	6	6	6	6	6
	b.	Flow and Quality of slides	6	6	6	6	6
	c.	Communication Skills	6	4	4	6	6
	d.	Learning Outcomes	6	6	6	6	6
	e.	Technical and professional competency	6	4	4	3	5
		(a+b+c+d+e)	**30**	26	26	29	29
	Report						
3	a.	Abstract	6	6	6	6	6
	b.	Organization of Report	6	6	6	6	6
	c.	Content	6	6	6	6	6
	d.	Conclusion	6	6	6	6	6
	e.	Overall presentation of the Thesis/Oral presentation	6	6	6	6	6
		(a+b+c+d+e)	**30**	30	30	30	30
4		**Total Marks**	100	96	96	97	99
		Evaluator Name and Signature		SUDHA IC			

Evaluator Remarks

Head of the department

Don Bosco Institute of Technology, Bangalore

(Affiliated to VTU, Approved by AICTE and Accredited by NAAC)
Kumbalagodu, Mysore Road, Bangalore-560 074

Department of Civil Engineering

Project Phase-II Evaluation Sheet

Date: 20/02/2021

Title of the Project: "COMPARATIVE STUDY OF MULTISTOREY RESIDENTIAL BUILDING USING STATIC AND SEISMIC ANALYSIS"

Sl	Evaluation Criteria	Max Marks	Name: SHASHANK.K	Name: MADHU.M.M	Name: CHARANRAJU N.S	Name: NIKHIL.B.T
			USN: 1DB17CV041	USN: 1DB17CV023	USN: 1DB17CV008	USN: 1DB17CV029
	Significance and Relevance					
1	a. Objectives – Define, Analyze and Explain goals	20	20	20	20	20
	b. Activities – Work carried out	20	20	20	20	20
	(a+b)	40	40	40	40	40
	Presentation					
2	a. Background, Introduction and Overview	6	06	06	06	06
	b. Flow and Quality of slides	6	06	06	06	06
	c. Communication Skills	6	03	03	03	01
	d. Learning Outcomes	6	06	06	06	06
	e. Technical and professional competency	6	06	06	06	06
	(a+b+c+d+e)	30	26	26	27	29
	Report					
3	a. Abstract	6	06	06	06	06
	b. Organization of Report	6	06	06	06	06
	c. Content	6	06	06	06	06
	d. Conclusion	6	06	06	06	06
	e. Overall presentation of the Thesis/Oral presentation	6	06	06	06	06
	(a+b+c+d+e)	30	30	30	30	30
4	**Total Marks**	100	96	96	97	99
	Evaluator Name and Signature		Raghavendra Gururaj B			
Evaluator Remarks						

Project Coordinator

Don Bosco Institute of Technology, Bangalore

(Affiliated to VTU, Approved by AICTE and Accredited by NAAC)
Kumbalagodu, Mysore Road, Bangalore-560 074

Department of Civil Engineering

Project Phase-II Evaluation Sheet

Date: 30/07/2021

Title of the Project: STRENGTH & BEHAVIOUR OF GEO POLYMER CONCRETE

Sl	Evaluation Criteria		Max Marks	Name: LIKITH KUMAR Y	Name: SACHIN R	Name: SHADAKSHARI B M	Name: MANOJ D H
				USN: 1DB17CV021	USN: 1DB17CV038	USN: 1DB18CV426	USN: 1DB18CV408
	Significance and Relevance						
1	a.	Objectives – Define, Analyze and Explain goals	20	20	20	20	20
	b.	Activities – Work carried out	20	20	20	20	20
		(a+b)	**40**	40	40	40	40
	Presentation						
2	a.	Background, Introduction and Overview	6	06	06	06	06
	b.	Flow and Quality of slides	6	06	06	06	06
	c.	Communication Skills	6	03	03	04	04
	d.	Learning Outcomes	6	06	06	06	06
	e.	Technical and professional competency	6	06	06	06	06
		(a+b+c+d+e)	**30**	27	27	28	28
	Report						
3	a.	Abstract	6	06	06	06	06
	b.	Organization of Report	6	06	06	06	06
	c.	Content	6	04	04	04	04
	d.	Conclusion	6	06	06	06	06
	e.	Overall presentation of the Thesis/Oral presentation	6	06	06	06	06
		(a+b+c+d+e)	**30**	28	28	28	28
4	**Total Marks**		100	95	95	96	96
	Evaluator Name and Signature			Rajavardhan S	Dhanraj P		

Evaluator Remarks