



SES COLLEGE SREEKANDAPURAM

(Accredited by NAAC with 'B' Grade) Affiliated to Kannur University



Criterion 2 Teaching- Learning and Evaluation

2.5. Evaluation Process and Reforms

2.5.2 Mechanism to deal with internal/external examination related grievances is transparent, time- bound and efficient

SES COLLEGE

SREEKANDAPURAM



Sreekandapuram (PO), Kannur District, Kerala-670631

Phone: 8156997733, www.sescollege.ac.in

E-mail: sescollege.skprm@gmail.com

Affiliated to Kannur University

Accredited by NAAC with B+ Grade

CALENDAR & HANDBOOK

— 2023-24 —

A student applying for any certificate shall furnish the following details for easy identification.

- 1) Full name as in the S S L C Book
- 2) Class No.
- 3) Admission No.
- 4) Course of study
- 5) Period of study
- 6) Subject taken

If the certificates are to be sent by post, a self addressed envelope with stamp should duly accompany the application.

No certificates will be issued to those against whom there are any dues to the college.

The conduct certificate is a document which the student has to earn. It will not be issued as a matter of course.

Qualifying certificates submitted by the students on admission will be returned to them only on completion of their respective University Examination. SSLC Books, mark lists etc. are to be claimed at least within a year after leaving the College. The college office will not be responsible for any damage or loss to the Certificate left unclaimed by the student.

RULE OF CONDUCT

Being the students of S.E.S college, the students are to obey the following Rules

1 Dress code:

Uniforms are compulsory except on Wednesdays. No kind of indecent dressing will be entertained. Students should enter the college campus only in a well dressed manner.

2 College Timing

The class commences at 9.30 A.M. By the third bell, strict silence is to be maintained in the class. Except during the interval time, students shall not roam around in the campus.

3 Cleanliness

- i. The classroom and its premises should be kept clean
- ii. Defacing the college wall or other properties by writing or pasting posters will be punishable.

4 Classroom Discipline:

1. Absence without leave for an hour will be counted as absence for half day
2. Absentees should submit application for leave in the prescribed form.
3. Continuous absence for five consecutive days will render his/her name to be struck off from the college rolls.

OTHER DISCIPLINARY MATTERS

1. Students shall not create any disturbance to the conduct of classes.
2. Students should not enter other classes without the permission of the Principal.
3. Students should have 'Identity Card' counter signed by the Principal. It should be produced whenever required.
4. Students should be courteous in their behaviour. They must respect the elders and their teachers. They should be kind and considerate to the ignorant and poor.
5. Smoking is strictly prohibited in the campus.
6. Use of mobile phone is strictly banned in the campus.
7. Ill mannered noise making is strictly forbidden in the college premises especially in the class rooms and auditorium.
8. Students who happen to have no class should not loiter through veranda during class hours.
9. Students are forbidden to organise any meeting or collect money for any purpose or circulate among them any notice or memorandum or petition or put it up on the college notice board without the permission of the Principal.
10. Students shall not participate in any meeting in the campus without prior permission of the Principal. Active participation in politics is not compatible with the academic life of students and as such, students are not expected to engage in public activities which are of political nature.

11. Absolute obedience is expected from every student. If any one tries to defy the authority of the Principal or any teacher, disciplinary action will be taken against them.

EXAMINATION RULE

1. A minimum of 75% attendance is required to appear for the University examination.
2. Internal assessment is conducted as per university regulations.
3. Students must bring their Hall Ticket when they appear for the examinations. No student will be permitted to write the examination without Hall Ticket.
4. Students should Keep their belongings outside the examination hall.
5. Absolute silence should be maintained in the examination hall.
6. Sharing of examination writing materials with others in the examination hall is strictly prohibited.
7. Any communication among the students verbally or non verbally in the examination hall will be treated as punishable malpractice.
8. Students found guilty of using unfair means in the examination hall will be reported to the university and may result in the student being debarred for a period of 3 years, be suspended or be expelled from the University.
9. Students can leave the examination hall only during the last 30 minutes of the examination time.
10. Question paper should carry no other marks or writings except register number and name.

INDIRECT GRADING SYSTEM

- 1 Kannur University follows indirect grading system based on a 7 point scale for UG programs.
- 2 Each course will be evaluated by assigning the mark with a letter grade (A+, A, B, C, D, E and F).
- 3 A candidate securing E grade with 40% of aggregate mark separately for each course shall be declared to have passed in that course.

- 4 Appearance for Internal Assessment and End Semester Evaluation are compulsory
- 5 A student who fails to secure a minimum E grade for a Pass in a course is permitted to write the examination along with next batch.
- 6 After successful completion of a semester, Semester Grade Point Average (SGPA) of a student in that semester is calculated.

SGPA = (Sum of the credit points of all courses in a semester) / (Total credits in that semester)

- 7 Cumulative Grade Point Average (CGPA) of the Student is calculated at the end of each semester. The CGPA of a student determines the overall academic level of the student in each stage of the program.

CGPA = (Sum of credit points of all completed semesters) / (Total credits acquired)

- 8 Overall Grade Point Average (OGPA) of the student is calculated at the end of the programs. The OGPA of a student determines the overall academic level the student in a program.

OGPA = (Sum of credit points obtained in six semesters) / (total credits (120))

LIBRARY RULES

1. Strict silence, discipline and decorum must be observed in the Library.
2. The college library will be open from 8.30 am to 4.00 p.m
3. The staff and students of the College are members of the library.
4. At a time, the U.G students, P.G students and teaching staff are allowed to borrow 2, 5, and 10 books respectively.
5. Borrowed books must be returned within a fortnight. A book may be re-issued to the same student if there is no other applicant for it.
6. The Librarian may recall any book at any time even before the expiry of the period.
7. A student failing to return a book within fifteen days will be fined **50 paise per day. (rounded to the next rupees) G.O.(MS) No. 5/2002 Eden. Dt. 15/1/2002**

8. Absence from the college will not be a valid reason for delay in returning books.

9. Members are expected to use the books with maximum care. If a book is lost or damaged, it should be replaced at once together with fine dues till the date of replacement. If the book is not replaced, the defaulter shall pay 2.5 times the cost of the book, together with fine.
10. Members are not allowed to pass books from one to another or lend them to anyone outside the college.
11. Marking or underlining or scribbling on book is strictly forbidden. If any book is found to have been marked or damaged the matter should be reported to the Librarian.
12. Books for home reading will be issued to the students on all working days.
13. If the date on which book is to be returned happens to be a holiday, it shall be returned on the next working day.
14. Reference books staff and students should return the library books on or before 10th March every year for "Physical stock verification" and for "No due Certificate"
16. All are expected to follow the above guidelines for the smooth functioning of the Library.

HOSTEL RULES

1. Ragging is strictly prohibited. Legal action will be initiated on complaints about ragging.
2. The parent of the inmate should nominate the local guardian (if any) in writing.
3. Fees should be paid in the first week of each month.
4. Inmates are responsible for the safety of their personal belongings.
5. Inmates should take utmost care to keep their rooms and hostel neat and clean. Poster/writings on the wall are not allowed.
6. Inmates should take permission from the Matron before leaving for home. They should sign the movement register with necessary entries.
7. Dressing should be decent.

8. Loss or damage to hostel properties shall invite fine/punishment.
9. Inmates should not change their allotted rooms without permission.
10. Day scholars are not allowed to enter the hostel.
11. Complaints and suggestions, if any, should be intimated to the Warden only.

COMMITTEES AND ASSOCIATIONS

COLLEGE COUNCIL

The College Council consists of the Principal, Heads of Departments and two elected members of teaching staff, N.C.C. and N.S.S. Programme Officers. The council advises the Principal in all academic and administrative matters of the college.

DISCIPLINE COMMITTEE

The committee keeps watch on the conduct of students in and outside the college and assists the Principal in maintaining discipline in the campus. It has power to inquire and report to the Principal instances of misconduct and recommend disciplinary action against the culprits.

Co-ordinator: **Dr. Pradeep K.V**

Assistant Professor and HOD, Dept. of Economics

IQAC (INTERNAL QUALITY ASSURANCE CELL)

A steering committee comprising representatives of Management, the Principal and Heads of Departments has been constituted to expedite NAAC accreditation for the college. The committee oversees and coordinates all activities and efforts to this end. The IQAC has become successful in getting the NAAC accreditation.

Co-ordinator: **Dr. Sajeesh. T.J**

Assistant Professor Dept. of Commerce - BBA

PARENT - TEACHER ASSOCIATION

The association fosters good rapport between the parents and the teachers so as to ensure smooth functioning of the

college. It also enlists the support and participation of the parents in the activities of the college. All parents and recognized guardians as well as teachers are its members.
 PTA Secretary : **Smt. Punnya Prakashan. A.K**
 Assistant Professor, Dept. of Commerce - BBA

ALUMNI ASSOCIATION

The Alumni association enables former students to keep in touch with their Alma Mater. The association organizes various activities and takes up ventures for the development of the college. Meetings and gatherings provide them opportunity for reunion.

Co-ordinator : **Smt. Salija. P.V**

Assistant Professor and HOD Dept. of Chemistry

THE COLLEGE UNION

A College Union consisting of elected representatives provides opportunities for the student community to actively participate in the academic and co-curricular activities of the college. The College Union functions under the guidance of a staff advisor.

Dr. Pradeep. K.V

Assistant Professor and HOD Dept. of Economics

NATIONAL CADET CORPS

A unit of NCC attached to the college gives training to selected students to build healthy minds and bodies. It instills in the cadets a sense of discipline and service and helps them to develop leadership qualities and a spirit of adventure.

Associate NCC Officer: **Lt. Preju K. Paul,**

Assistant professor & H.O.D, Dept of Physical Education

NATIONAL SERVICE SCHEME

There are two units of the National Service Scheme in the college. NSS inculcates a sense of service in the students and prompt them to work for the welfare of the society and the progress of the country. Eligible NSS volunteers are entitled to 5% grace marks for their future studies

Convener: **Dr. Reena Sebastian**
Assistant Professor Dept. of Mathematics

COUNSELLING CENTRE

The Centre supports students with timely advice and direction to their lives. Students are helped to discover their strengths and aptitudes.

Convener: **Dr. Sunitha Joseph**
Assistant Professor, Dept. of Economics

CAREER GUIDANCE CENTRE

A Career Guidance centre is functioning in our college.

Convener: **Samson Rajan**
Assistant Professor, Dept. of English

Sri. Deepu Jose K.

Assistant Professor and HOD, Dept of Communication & Journalism

WOMEN'S WELFARE & EMPOWERMENT CELL

The cell addresses the genuine concerns, problems and difficulties of the female students in the campus. They can confide in the cell and seek support and help.

Welfare Officer: **Smt. Shabeena Backer**
Assistant Professor, Dept. of English

STUDENTS AID FUND

Student's aid fund is instituted with the contribution from students. A committee formed for the purpose distributes the amount to deserving students.

Convener: **Smt. Silja C.**
Assistant Professor, Dept. of Mathematics

ALUMNI ASSOCIATION

The college has an active Alumni Association which bridges the past and present for the brighter future of the institution.

Convener: **Smt. Salija. P.V**
Assistant Professor and HOD, Dept. of Chemistry

ANTI RAGGING COMMITTEE

The college ensures strict measures to make sure of the students well being and take necessary steps to prohibit ragging in the institutional environment.

Convener: **Dr. Sreekumar. N.M**
Assistant Professor, Dept. of Economics

ANTI-DRUGS PROGRAMME & COTPA

Convener: **Dr. Sunitha Joseph**
Assistant Professor, Dept. of Economics

INTERNAL COMPLAINTS COMMITTEE

Convener: **Dr. Reena Sebastian**
Assistant Professor, Dept. of Mathematics

EXTENTION ACTIVITIES COMMITTEE (NOSES)

Convener: **Dr. Sunitha Joseph**
Assistant Professor, Dept. of Economics

SCHOLARSHIP AND ENDOWMENT COMMITTEE

Convener: **Shyna Janardhanan** (Scholarship)
Assistant Professor and HOD, Dept. of English
Convener: **Smt. Nasreena. P.K** (Endowment)
Assistant Professor and HOD, Dept. of History

ACADEMIC MONITORING COMMITTEE

Convener: **Dr. Reena Sebastian**
Assistant Professor Dept. of Mathematics

PUBLIC RELATIONS OFFICER

Convener: **Dr. Pradeep. K.V**
Assistant Professor and HOD, Dept. of Economics



SES COLLEGE

SREEKANDAPURAM

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Phone: 04602230293, www.sescollege.ac.in,
sescollege.skprm@gmail.com

TUTORIAL CARD

(20²³..... 20²⁶.....)

Name of Student..... *Jishna.K*





SES COLLEGE

SREEKANDAPURAM

TUTORIAL CARD

(20²³..... 20²⁶.....)

Name of Student :	Jishna K
Course	BSc Physics
Admission No.	13086
Class No.	
University Reg. No.	SE23CPH04

PERSONAL PROFILE

Name of Student	Jishna K
Course	BSc Physics
Admission No.	13086
Class No.	
University Reg. No.	
Date of Birth	5-10-2005
Blood Group	O ⁺
Religion & Caste	Hindu, Viswakarma
E-mail ID	Roshankakkoth@gmail.com
Telephone/Mobile No.	9447147115
Home Address	Jishna Nivas, Padikkachal, P.O. Uthiyil Pin 670702
Name of Guardian	Roshan K
Relationship with Student	Father
Name of Father	Roshan K
Occupation	Driver
Name of Mother	Sajini K
Occupation	House wife
Annual income of parent	54000
Contact Nos.	9447691773, 8089330558
Name of relative who studied in this College with year	
Whether received any scholarship (If yes, give details)	

Marks Secured for Qualifying Examination

Name of Examination	Board/University	Grade/Mark Secured	Percentage of marks
SSLC	Board	Full A ⁺	
Higher secondary	Board	1054	87%

SEMESTER I

Sl. No.	Subject	Attendance %	Class Test	Model Exam	Internal	External	University
	English (Communicative)	Above 95%			8	33	41
	Hindi	"			10	31	41
	Mechanics	"	25(25)	38(40)	10	26	36
	Electronics	"	26½(30)	31(32)	8	22	30
	Maths	"			10	36	46
	Readings on Kerala	"	25	19	8	26	34

Signature of Parent

Tutor

HOD

Remarks:

SEMESTER II

Sl. No.	Subject	Attendance %	Class Test	Model Exam	Internal	External	University
	Readings on life & nature	Above 95%					
	Readings on Gender	"		26(40)	9		
	Hindi	"			10		
	Mathematical Physics	"	(20/20)	33(40)	10		
	Digital Electronics	"	18½(23)		8		
	Mathematics	"			10		

Signature of Parent

Tutor

HOD

Remarks:

S.E.S. COLLEGE, SREEKANDAPURAM

INTERNAL MARK SHEET

18

Programme : BSc Physics

Semester : III

Subject : 3C03 MAT: Mathematics for Physics III

Sl.No.	Reg.No.	Name	Exam (5)	Assignment (2.5)	Attendance (2.5)	Total	Remarks	Signature
1	SE22CPH01	SREERAG V P						<i>[Signature]</i>
2	" 02	AVANI M P						<i>[Signature]</i>
3	" 03	NIYARAJ KR						<i>[Signature]</i>
4	" 04	THEERTHA PRAKASH MV						<i>[Signature]</i>
5	" 05	AROMAL KV						<i>[Signature]</i>
6	" 06	HRITHIK KP						<i>[Signature]</i>
7	" 07	ANANYA TV						<i>[Signature]</i>
8	" 08	DEVANANDA TP						<i>[Signature]</i>
9	" 09	NEHA KP						<i>[Signature]</i>
10	" 10	NIHARA K						<i>[Signature]</i>
11	" 11	SHAMALULU CR						<i>[Signature]</i>
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prepared by
Silja C

[Signature]
Dr. Dhanya. A.C
Assistant Professor & HOD
Department of Physics
SES College Sreekandapuram
Kannur-670431

S.E.S. COLLEGE, SREEKANDAPURAM

INTERNAL MARK SHEET

Programme : BSc Physics

Semester : IV

19

Subject : 4A06 ENG Reading on Philosophy of Knowledge

Sl.No.	Reg.No.	Name	Exam (5)	Assignment (2.5)	Attendance (2.5)	Total	Remarks	Signature
1	SE22CPH01	Sreerag V P	6	3		9		<i>Sreerag</i>
2	" 02	Avani MP	6	3		9		<i>Avani</i>
3	" 03	Niyaraj K R	6	3		9		<i>Niyaraj</i>
4	" 04	Theertha Prakash MV	6	3		9		<i>Theertha</i>
5	" 05	Aromal K V	5	2		7		<i>Aromal</i>
6	" 06	Hrithik K P	4	3		7		<i>Hrithik</i>
7	" 07	Ananya T V	6	3		9		<i>Ananya</i>
8	" 08	Devananda T P	6	2		8		<i>Devananda</i>
9	" 09	Neha K P	5	2		7		<i>Neha</i>
10	" 10	Alihara K	6	2		8		<i>Alihara</i>
11	" 11	Shamalulu ck	6	3		9		<i>Shamalulu</i>
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Prepared by

Neethu P

(Signature)

Dr. Dhanya A.C
Assistant Professor & HOD
Department of Physics
SES College Sreekandapuram
Kannur-670631

S.E.S. COLLEGE, SREEKANDAPURAM

INTERNAL MARK SHEET


28

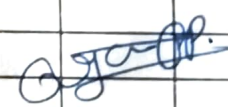
Programme : BSc Physics

Semester : V

Subject : 5B07PHY Electrostatics and Magnetostatics

Sl.No.	Reg.No.	Name	Exam (5)	Assignment (2.5)	Attendance (2.5)	Total	Remarks	Signature
1	SE22CPHR01	Sreerag V P				8		
2	02	Arani M P				9		
3	03	Niyaraj K R				10		
4	04	Theertha Prakash M V				6		
5	05	Aromal K V				4		
6	06	Hrithik K P				2		
7	07	Ananya T V				10		
8	08	Devarananda T P				4		
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Dr. REJITH P P
 Assistant Professor & HOD
 Department of Physics
 S.E.S. College, Sreekandapuram

Prepared by 
 Dr. Rejith P P

S.E.S. COLLEGE, SREEKANDAPURAM

INTERNAL MARK SHEET

26

Programme : BSc Physics

Semester : IV

Subject : 4CO4 MAT-PH Mathematics for Physics IV

Sl.No.	Reg.No.	Name	Exam (5)	Assignment (25)	Attendance (25)	Total	Remarks	Signature
1	SE22 CPH01	Sneerag V P	6	4		10		<i>Sneerag</i>
2	4 02	Avani M P	5	4		9		<i>Avani</i>
3	" 03	Niya Raj K R	6	4		10		<i>Niya Raj</i>
4	" 04	Theertha Prakash M V	4	2		6		<i>Theertha</i>
5	" 05	Aromal K V	4	2		6		<i>Aromal</i>
6	" 06	Mithik K P	4	2		6		<i>Mithik</i>
7	" 07	Ananya T V	6	4		10		<i>Ananya</i>
8	" 08	Devananda T P	4	2		6		<i>Devananda</i>
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Prepared by
Silja C.

[Signature]
Dr. Dhanya. A.C
Assistant Professor & HOD
Department of Physics
S.E.S. College, Sreekandapuram
Kollam - 691011

SES COLLEGE SREEKANDAPURAM KANNUR

Name of Examination : 3rd Sem Model Examination
(Course & Year)

Subject : Electronics - Communication System

Code : 303 ELE



Date

0	3	1	1	2	0	2	3
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DATE MONTH Y E A R

No. of Booklets used

Question No.	Mark	Question No.	Mark
1	0	31	
2	1	32	
3	0	33	
4	21	34	
5	1	35	
6	2	36	132
7	1	37	
8		38	32
9	1	39	
10	13	40	
11	0	41	
12		42	
13	3	43	
14	21	44	
15		45	
16	1	46	
17		47	
18		48	
19	1	49	
20	13	50	
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28		58	
29		59	
30		60	

Register No.

SE22CPH08

Name of Examination

(Course & Year)

3rd Sem Model

Examination

Subject Complementary

Elective course Electronics

Paper Communication System

Code 303 ELE

[Handwritten Signature]

Signature of the Candidate

[Handwritten Signature]

Signature of the Invigilator

Booklet No.

4969

Total Marks : Percentage : Grade:

Q.3/11/23

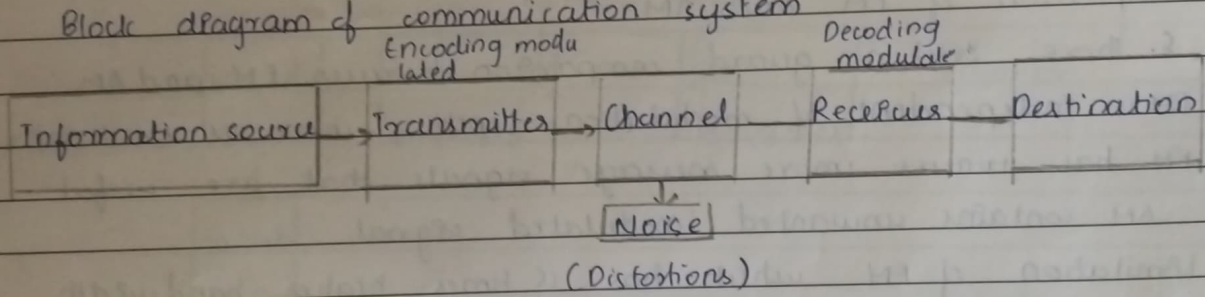
Medium frequency

channel is the physical medium connecting the transmitter and receiver. The physical medium can be made up of coaxial wire, copper wire, optic fibre cable etc.

- 3. having discrete values which creates the message signal which describes the shape of the signal.
- 4. Signal to noise ratio is defined as the ratio of signal power to the ratio of noise power.

Pulse code Modulation.

Block diagram of communication system



7. Need for modulation

there exist two quantities:

- A physical quantity for regulation
- Another physical quantity to be regulated.

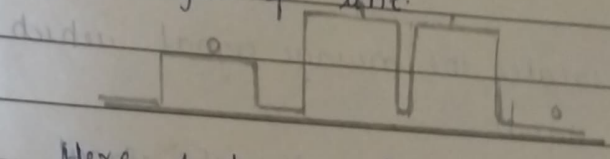
The message signal carry cannot travel along long distance by itself it needs a carry. for the transmission the use of modulated signal is required for shifting range frequencies

selectivity - The process of removing unwanted message signal

2. Bit rate. The bit rate is defined as the number of bits transmitted per second.

Bit rate = Baud rate \times Number of changes in bits

Baud rate - It is the number of changes of state occurring. It can be also defined as the number of changes of sign.



Here 4 changes of state. It

11. Pulse width modulation. Width of the pulse which has variation in its width which is proportion to its message signal. (PWM)

8. Comparison of FM and AM.

- There exist a guard comparison between FM and AM
- FM is independent of modulation depth, where as AM is not.
- FM has ~~waves~~ more message signals that are useful AM contains unwanted modulated signal.
- Limitation of FM which has 15 times higher bandwidth than amplitude modulation.

14. ASK and FSK

ASK - Amplitude Shifting Key

The amplitude of the process of shifting amplitude of the carrier signal between two levels that is the binary number 0's and 1's.

$$V_c = V_c \sin \omega_c t$$

5. ASK transmission.

It is ~~transmitted~~ ~~an~~ ~~the~~ efficiency

ASK - Frequency Shifting Key - The process of shifting of frequency carrier signal between two levels 0 and 1 - FSK - 2 carrier

$$V_{c1} = V_c \sin \omega_{c1} t$$

$$V_{c2} = V_c \sin \omega_{c2} t$$

The modulation index of an AM

$$V_m = \frac{V_{max} - V_{min}}{2}$$

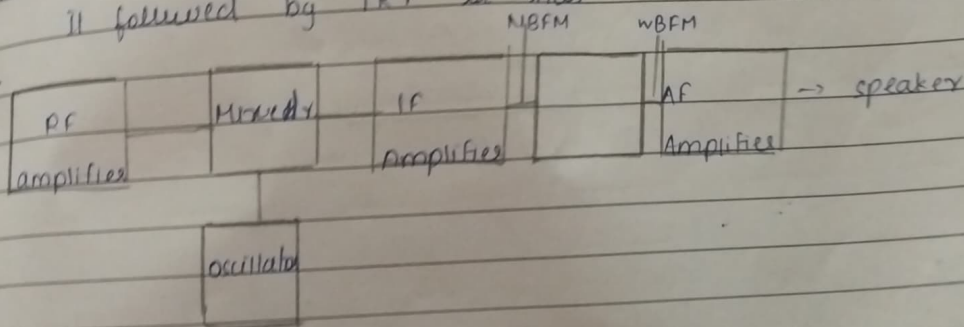
$$V_c = \frac{V_{max} + V_{min}}{2}$$

$$\frac{V_m}{V_c} = \frac{\frac{V_{max} - V_{min}}{2}}{\frac{V_{max} + V_{min}}{2}} = \frac{V_{max} - V_{min}}{V_{max} + V_{min}}$$

modulated index = $\frac{V_m}{V_c}$

20. Super hetero-dyne radio receiver.

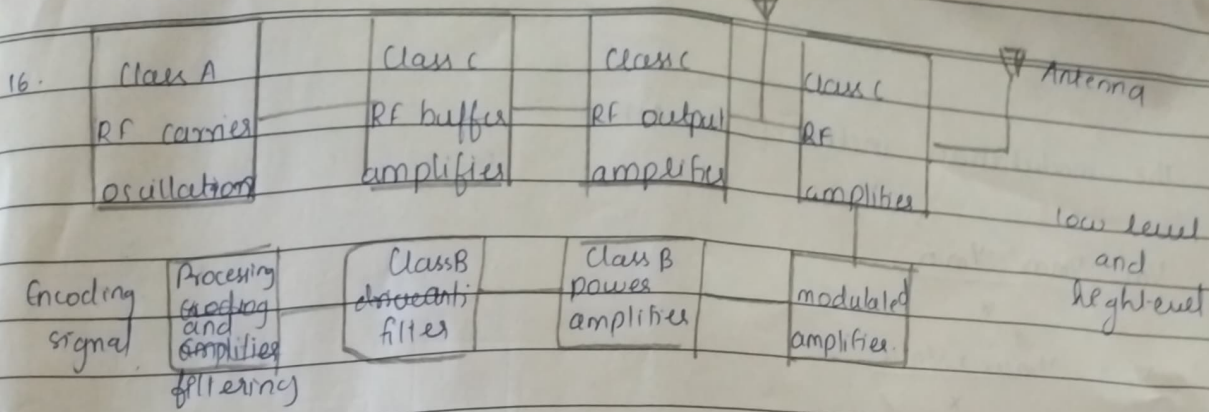
It followed by TRF PI has



The radio message signal arrives at the RF amplifier having RF source. It acquires only the required signal and is then transmitted to the mixer stage. From the mixer stage, the amplified message signal are selectively taken from the intermediate frequency amplifier range.

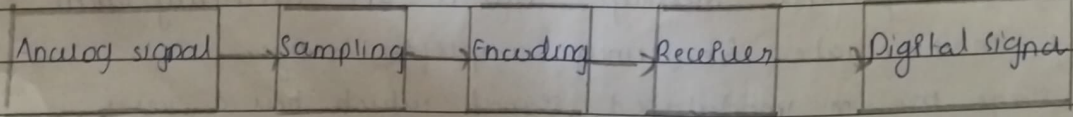
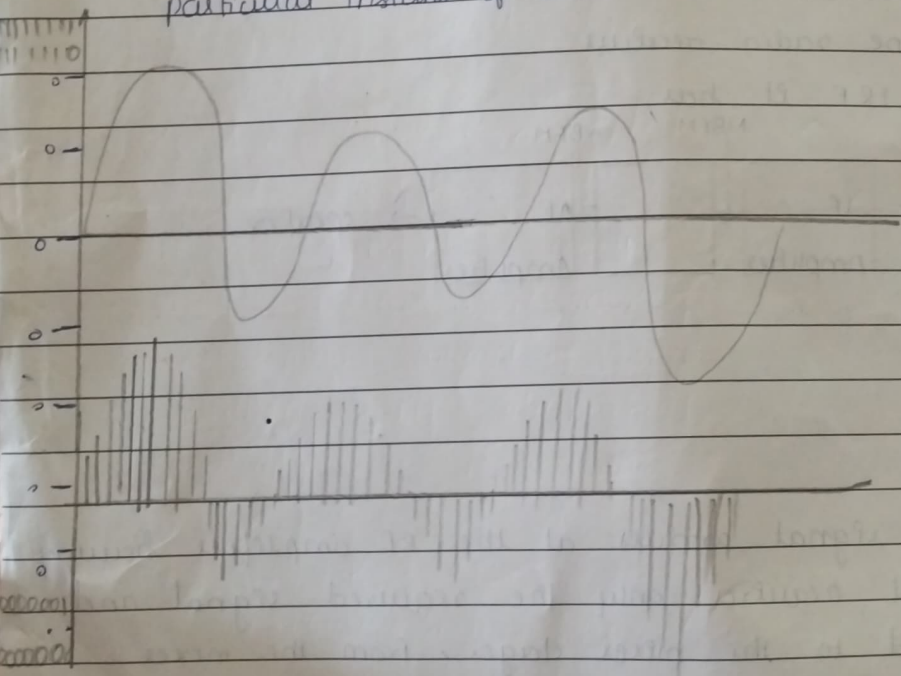
In that stage the modulated signal which has a very narrow frequency range for the passage of signal such that here exist the process of selectivity having only passed to the IF amplifier. Only the required modulated signals are passed to the next stage and finally after the involvement of radio signal from the RF amplifier and finally to AF amplifier which has wide band fm transmit the modulated signal through the speaker.

this IF amplifier has the removal of unwanted signal and only required signals is passed it is hence called the super heterodyne receiver.



19. PCM - Pulse code modulation.

It is the amplitude of the pulse code modulation has discrete values. It happens this process does amplification at a particular instant of time.



Block diagram for pulse code modulation.

ASSIGNMENT

2/2/23

By,

A. A. M. H. K.

ASSIGNMENT

By,

Analsaj Mattankot.

11
302
12/12/23

Calculate the M.I & radius of gyration of a disc of mass 1.2 kg & radius 8 cm about

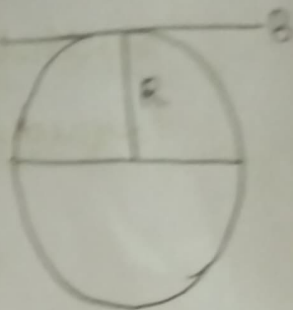
i) its diameter

ii) an axis \parallel to the diameter & tangent to the disc

i) M.I about its diameter, $I_d = \frac{MR^2}{4}$

$$= \frac{1.2 \times (8 \times 10^{-2})^2}{4} = \frac{1.2 \times 64 \times 10^{-4}}{4}$$

$$= \frac{76.8 \times 10^{-4}}{4} = \underline{\underline{19.2 \times 10^{-4}}}$$



Radius of gyration, $k = \frac{R}{2} = \frac{8 \times 10^{-2}}{2} = \underline{\underline{4 \times 10^{-2}}}$

ii) M.I. of, $I = \frac{5}{4} MR^2$

$$= \frac{5 \times 1.2 \times 64 \times 10^{-4}}{4}$$

$$= \underline{\underline{96 \times 10^{-4}}}$$

radius of gyration, $k = \frac{\sqrt{5}}{2} \times R$

$$= \frac{\sqrt{5} \times 8 \times 10^{-2}}{2}$$

$$= \sqrt{5} \times 4 \times 10^{-2}$$

$$= \underline{\underline{8.94 \times 10^{-2}}}$$

The eqn of a transverse wave travelling along a stretched string is given by $y = 5 \sin 2\pi \left(\frac{x}{100} - \frac{t}{0.02} \right)$ with length expressed in cm & time in sec. Find amplitude, frequency, velocity & wave length?

$$\text{velocity, } v = f\lambda$$

$$= 1 \times 200 = 200 \text{ cm/s}$$

Q.4) A simple harmonic wave is represented by,

$y = 5 \sin(2\pi(\frac{t}{0.05} - 0.05x))$ where y & x are in cm. Find the wave length, velocity of wave. Also find the velocity of the particle at a distance 10 cm from origin at an instant 1 sec later.

$$y = 5 \sin(2\pi(\frac{t}{0.05} - 0.05x))$$

$$y = 5 \sin(\frac{2\pi}{0.05}t - 2\pi \times 0.05x)$$

$$y = A \sin(\omega t - kx)$$

$$\lambda = \frac{2\pi}{k} = \frac{2\pi}{2\pi \times 0.05} = \frac{1}{0.05} = 20 \text{ cm}$$

$$f = \frac{\omega}{2\pi} = \frac{2\pi}{0.05} \times \frac{1}{2\pi} = \frac{1}{0.05} = \underline{\underline{20 \text{ Hz}}}$$

$$v = f\lambda = 20 \times 20 = \underline{\underline{400 \text{ cm/s}}}$$

$$v = \frac{dy}{dt} = 5 \cos(\frac{2\pi}{0.05}t - 2\pi \times 0.05x) \times \frac{2\pi}{0.05}$$

$$= \frac{2\pi}{0.05} \times 5 \cdot \cos(\frac{2\pi}{0.05}t - 2\pi \times 0.05x)$$

$$\text{at } t=1, x=10$$

$$v = \frac{2\pi}{0.05} \times 5 \cos(\frac{2\pi}{0.05} - 2\pi \times 0.05 \times 10)$$

$$= 628 \cdot \cos(125.6 - 3.14)$$

$$= 628 \cos(122.46)$$

$$= -337.05$$

$$y = 5 \sin 2\pi \left(\frac{x}{100} - \frac{t}{0.02} \right)$$

$$y = 5 \sin \left(\frac{2\pi x}{100} - \frac{2\pi}{0.02} t \right)$$

$$y = A \sin(kx - \omega t)$$

$$\text{Amplitude, } A = \underline{5}$$

$$\begin{aligned} \text{Frequency, } f &= \frac{\omega}{2\pi} = \frac{2\pi}{0.02} \times \frac{1}{2\pi} \\ &= \underline{50 \text{ Hz}} \end{aligned}$$

$$\begin{aligned} \omega &= 2\pi f \\ f &= \frac{\omega}{2\pi} \end{aligned}$$

$$\text{Wave length, } \lambda = \frac{2\pi}{k} = \frac{2\pi \times 100}{2\pi}$$

$$\lambda = \underline{100 \text{ cm}}$$

$$k = \frac{2\pi}{\lambda}$$

$$\text{Velocity, } v = f\lambda$$

$$= 50 \times 100 = \underline{5000 \text{ cm/s}}$$

Q3) The eqn of a transverse wave travelling along a stretched string is given by $y = 10 \sin \{ \pi (2t - 0.01x) \}$ where y & x are in cm. & t in sec. Find amplitude, frequency, velocity & wave length of the wave?

$$y = 10 \sin \{ \pi (2t - 0.01x) \}$$

$$y = 10 \sin (2\pi t - \pi \cdot 0.01x)$$

$$y = A \sin (\omega t - kx)$$

$$\text{amplitude, } A = 10$$

$$\text{frequency, } f = \frac{\omega}{2\pi} = \frac{2\pi}{2\pi} = \underline{1 \text{ Hz}}$$

$$\text{Wave length, } \lambda = \frac{2\pi}{k} = \frac{2\pi}{\pi \times 0.01} = \frac{2}{0.01} = 200 \text{ cm}$$

ASSIGNMENT

~~2024~~
26/2/24

IRFANIA.p.p.
Bsl physics
SE 21CPHR16.

- What is the radius of 1st half period zone in a zone plate behaving like a convex lens of focal length 60cm for light of wavelength 6000Å.

for a zone plate,

$$\text{the focal length } f = \frac{r_n^2}{n\lambda}$$

where r_n is the radius of the n^{th} half period zone, and λ is the wavelength of light.

Here, $f = 60 \text{ cm} = 0.6 \text{ m}$

$$\lambda = 6000 \text{ \AA} = 6000 \times 10^{-10} \text{ m.}$$

and $n=1$

$$\begin{aligned} \text{then } r_1^2 &= f n \lambda = 0.6 \times 1 \times 6000 \times 10^{-10} \\ &= 3.6 \times 10^{-7} \text{ m.} \end{aligned}$$

radius of 1st half period zone $r_1 = \underline{\underline{0.6 \text{ mm}}}$

- Find the radii of the first 3 transparent zones of a zone plate whose 1st focal length is 1m for $\lambda = 5893 \text{ \AA}$.

a. focal length $f = 1 \text{ m}$

wavelength $\lambda = 5893 \text{ \AA}$.

$$f = \frac{r_n^2}{n\lambda}$$

$$r_n = \sqrt{f n \lambda}$$

For 1st transparent zone, ~~radius~~ $n=1$

$$\text{then radius } r_1 = \sqrt{f \times 1 \times \lambda} = \sqrt{1 \times 5893 \times 10^{-10}} = \underline{\underline{0.7 \text{ mm}}}$$

radius of 2nd transparent zone $r_2 = \sqrt{f \times 2 \times \lambda}$
 $= \underline{\underline{1 \text{ mm}}}$

radius of 3rd transparent zone $r_3 = \sqrt{3 \times f \times \lambda} = \underline{\underline{1.3 \text{ mm}}}$

The diameter of 1st ring of a zone plate is 1.1 mm. If a plane of wavelength 6000 \AA fall on a plate, where should the screen be placed so that light is focused to a bright spot?

Diameter of 1st ring of zone plate = 1.1 mm

$$\text{radius } r_1 = \frac{1.1 \text{ mm}}{2} = \underline{5.5 \times 10^{-4} \text{ m}}$$

wavelength of light $\lambda = 6000 \text{ \AA} = 6000 \times 10^{-10} \text{ m}$.

$$f = \frac{r_1^2}{\lambda} = \frac{(5.5 \times 10^{-4})^2}{6000 \times 10^{-10}} = \underline{0.504 \text{ m}}$$

The Screen should be placed 0.504 metre apart from the zone plate.

A zone plate gives a series of images of a point source on its axis of the first and second strongest images are at distance of 30 cm and 6 cm from the zone plate both on the same side from the source. Calculate the distance of source from the zone plate.

we know, $\frac{1}{b} - \frac{1}{a} = \frac{1}{f}$ — (1)

where b is the distance from zone plate to the image
 a is the distance from source to zone plate and ' f '
 is the focal length of zone plate.

Given that,

The distance of the first strongest image = 30 cm
 $b_1 = 0.3 \text{ m}$.

The distance of the second strongest image $b_2 = 6 \text{ cm}$
 $= 0.06 \text{ m}$.

then by eqn (1).

$$\frac{1}{0.3} = \frac{1}{f} + \frac{1}{a} \quad \text{--- (2)}$$

$$\frac{1}{0.06} = \frac{1}{f} + \frac{1}{a} \quad \text{--- (3)}$$

Subtracting (3) from (2).

$$\frac{1}{0.3} - \frac{1}{0.06} = 0.$$

But we consider $\frac{1}{a} \neq 0$.

$$\text{then. } \frac{1}{0.3} - \frac{1}{0.06} = \frac{1}{a}$$

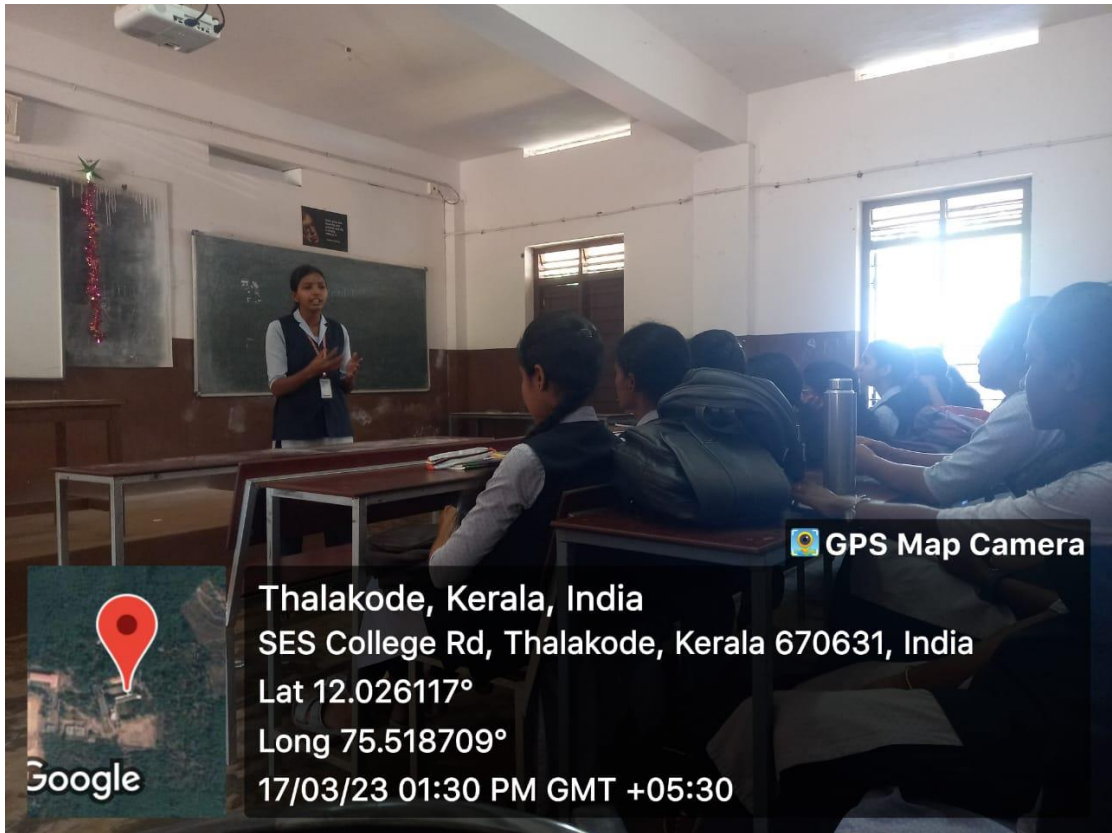
$$\frac{-0.24}{0.018} = \frac{1}{a}$$

$$-13.315 = \frac{1}{a}$$

$$a = -0.075 \text{ m}$$

Since the source and the images are on the same side of the zone plate, the distance a must be possible.

Thus, the distance of the source from zone plate $a = \underline{\underline{0.075 \text{ m}}}$.






Father of graph theory
Leonhard Euler: (Swiss Mathematician)

• Problem solver: Discovered the seven bridges of Königsberg problem.
• Combinatorics: networks and counting theory of finite graphs.
• Topology and geometry: introduced the concept of Euler characteristic, especially useful for finding the maximum number of faces for a polyhedron. He gave the formula $V - E + F = 2$.



 **GPS Map Camera**



Kannur, Kerala, India
Kaithapram (Po, 2GGF+287, Podikkalam - Madampam Rd, Kerala 670631, India
Lat 12.026131°
Long 75.522393°
05/02/24 02:31 PM GMT +05:30

SES COLLEGE SREEKANDAPURAM
1 Semester BSc Degree Internal Examination, November 2023
1B01 PHY: Mechanics I

Time: 1 $\frac{1}{2}$ hours

Total Marks: 30

SECTION-A

(Answer all each carry 1 marks)

1. The forces acting on a turtle on an elevator are.....
2. Equation of Electrostatic force is.....
3. A body moving through liquids or gases is retarded by.....
4. Hook's law, Force is always directed towards
5. If a rectangular crate is held one corner resting on a frictionless table and the crate is gently released the centre of mass accelerates....

(1X5=5)

SECTION-B

(Answer any four each carry 2 marks)

6. Distinguish between inertial and non inertial frames of reference.
7. State Newton's laws.
8. What is inertia, Explain.
9. What are constraints?
10. State and explain Newton's law of gravitation
11. What are the Four fundamental forces of nature.

(4X2=8)

SECTION-C

(Answer Four each carry 3 marks)

12. A spring gun fires a marble of mass M by means of a spring and piston in a barrel. Piston and marble are pulled back a distance L from equilibrium and released. Find the speed of the marble just as it loses contact with the piston.
13. Three freight cars each of mass M are pulled with force F . Friction is negligible. Find the forces on each car.
14. A uniform rope of mass M and length L hangs from the limb of a tree . Find the tension at a distance x from the bottom.

15. A block of mass M on a horizontal frictionless surface is attached to one end of a horizontal spring whose other end is fixed. If K is spring constant, derive the solution of simple harmonic motion executed by the system.
16. What will be the motion of a bola used by Gauchos.
17. A mass m whirls with constant speed v at the end of a string of length R . Find the force on m in the absence of gravity and friction.

(4x3=12)

SECTION-D

(Answer one each carry 5 marks)

18. Apply Newtons laws to find the accelerations of two astronauts of masses M_A and M_B pulling on either ends of a rope of negligible mass.
19. With the help of a diagram explain Linear air track.

(1x5=5)

SES COLLEGE SREEKANDAPURAM
1 Semester BSc Degree Internal Examination 2, November 2022
1B01 PHY: Mechanics I

Time: 1 $\frac{1}{2}$ hours

Total Marks: 25

SECTION-A

(Answer any four each carry 2 marks)

1. State and write an expression for work energy theorem in 1-D.
2. Write any two cases in which work energy theorem is useful.
3. Write about nonconservative forces.
4. Explain escape velocity.
5. Explain potential energy of a uniform force field.
6. Explain mechanical energy.

(4X2=8)

SECTION-B

(Answer Four each carry 3 marks)

7. How can we find the vibrational frequency of the molecule?
8. Using the idea of nonconservative force, explain work energy theorem.
9. If a mass m is projected upwards with an initial velocity $v_0 = v_{0x}i + v_{0y}j + v_{0z}k$. Find the speed at height h using conservation of energy
10. Find the escape velocity of earth.
11. Explain work done by a central force.
12. Explain what potential energy just tells us about?.

(4x3=12)

SECTION-C

(Answer one each carry 5 marks)

13. Explain work energy theorem in several dimensions.
14. Explain energy diagrams and the applications of Newtonian mechanics and the conservation laws for momentum and energy

(1x5=5)

SES COLLEGE SREEKANDAPURAM
I Semester BSc Degree Model Examination, December 2023
1B01 PHY: Mechanics I

Time: 3 hours

Total Marks: 40

SECTION-A
(Answer ALL, each carry 1 mark)

1. Give expressions for linear and angular momenta.
2. Unit of angular momentum is ____
3. Law of equal areas hold true under any ____
4. Write an expression for work energy theorem for rotational motion.
5. Expression for escape velocity is -----

(1x5=5)

SECTION-B
(Answer any Five, each carry 2 marks)

6. Explain escape velocity.
7. Explain potential energy of a uniform force field
8. If 'r' and 'p' lies in X-Y plane, give various directions of 'L'.
9. Explain torque due to gravity.
10. Explain mechanical energy.
11. Prove that If Torque is zero angular momentum is conserved.
12. State parallel axis theorem.

(5X2=10)

SECTION-C
(Answer any Five, each carry 3 marks)

13. Using the idea of nonconservative force, explain work energy theorem.
14. If a mass m is projected upwards with an initial velocity $v_0 = v_{0x}i + v_{0y}j + v_{0z}k$. Find the speed at height h using conservation of energy
15. Find the escape velocity of earth.

16. A uniform drum of radius b and mass M rolls without slipping down a plane inclined at a particular angle, Find the acceleration along the plane. Moment of inertia about its axis is $Mb^2/2$.
17. Explain simple pendulum.
18. Explain Physical Pendulum.
19. Write the expressions of Torque on a sliding block.

(5x3=15)

SECTION-D

(Answer any Two, each carry 5 marks)

20. Write the expression for acceleration in the case of Atwood's machine with massive pulley.
21. Explain work energy theorem in several dimensions.
22. Explain energy diagrams and the applications of Newtonian mechanics and the conservation laws for momentum and energy
23. State and prove law of equal areas.

(2x5=10)

SES COLLEGE SREEKANDAPURAM
I Semester BSc Degree Model Examination, INTERNALS
1B01 PHY: Mechanics I

SL.NO:	Reg.NO:	NAME OF STUDENT	CT1(30)	CT2(25)	MODEL (40)
1	SE23CPHR01	ANJANA MUKUNDAN	26	25	37
2	SE23CPHR02	ATHISAYA R SREEDHAR	AB	22	28
3	SE23CPHR03	FATHIMATH NAJIYA K	28	25	32
4	SE23CPHR04	JISHNA K	28	25	38
5	SE23CPHR05	NEERAJA JAYARAJ	26	19	29
6	SE23CPHR06	VARSHA V B	27	25	33
7	SE23CPHR07	ABHINAV A	08	02	11
8	SE23CPHR08	ADWAITH K V	28	25	37
9	SE23CPHR09	CHETHAK P	18	05	25
10	SE23CPHR10	THUSHAR BABU A	27	12	17
11	SE23CPHR11	FATHIMATHUL FIDHA V	18	03	22
12	SE23CPHR12	ADHARV C P	24	25	32
13	SE23CPHR13	AMARNATH C C	15	AB	16
14	SE23CPHR14	SIVAJITH K P	22	15	20
15	SE23CPHR15	VIPIN P	24	17	11
16	SE23CPHR16	YADHUKRISHNA R	15	11	14

Assignment

	CT1 (30)	CT2 (25)	Seminar	CT3 (25)	Modul (40)	Internal distribut ⁿ	Internal (10)
1. Anjana Mukundan	26	25	✓	25	37	$5 \cdot 8 + 4 = 9.8$	10
2. Abhinav A	08	02	✓	05	11	$1 \cdot 6 + 4 = 5.6$	6
3. Adwait K V	28	25	✓	19	37	$5 \cdot 8 + 4 = 9.8$	10
4. Anjana K	AB	AB			AB		
5. Athisaya R Sreedhar	AB	22	✓	12	28	$4 \cdot 7 + 4 = 8.7$	9
6. Chethak P	18	05	✓	16	25	$3 \cdot 7 + 4 = 7.7$	8
7. Falhimath Najiya K	28	25	✓	AB	32	$5 \cdot 5 + 4 = 9.5$	10
8. Jishna K	28	25	✓	25	38	$5 \cdot 9 + 4 = 9.9$	10
9. Thushar Babu A	27	12	✓	15	17	$4 \cdot 5 + 4 = 8.5$	9
10. Varsha V B	27	06	✓	25	33	$5 \cdot 5 + 4 = 9.5$	10
11. Adharv C P	24	25	✓	21	32	$5 \cdot 5 + 4 = 9.5$	10
12. Amarnath C C	15	-	✓	12	16	$2 \cdot 7 + 4 = 6.7$	7
13. Fathimathul Fidha V	14+4	03	✓	22	22	$4 \cdot 3 + 4 = 8.3$	8
14. Neeraja Jayaraj	26	19	✓	24	29	$5 + 4 = 9.0$	9
15. Sivajith K.P	22	15	✓	15	20	$3 \cdot 7 + 4 = 7.7$	8
16. Vipin P	24	17	✓	11	11	$3 \cdot 5 + 4 = 7.5$	8
17. Yaddu Krishna R	15	11	✓	12	14	$2 \cdot 6 + 4 = 6.6$	7

Internal distributⁿ ⇒ Exam → 6
Assi/sem/visa - 4

Signature

~~Signature~~

Signature

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