



Question Paper For Internal Assessment Examination (Theory) - Credit 4 / 44 /

Instructions for Students/Faculty Mid Term I (Total 80 Marks, 2 HRS. Syllabus from Unit-1)

- Part A: Total number of questions to be given are ten (5 from CO1 and 5 from CO2), each carrying 2 marks and are compulsory to attend. There is no choice. They are short answer type questions (**Not More Than 25 Words For both Question & Answer**), no objective type or fill in the blanks. Total 20 marks.
- Part B: Total number of questions to be given are six (3 from CO1 and 3 from CO2), out of which student must answer four (2 from CO1 and 2 from CO2). They are long answer type (**Not More Than 50 Words for Question**), each carrying 5 marks. Total 20 marks.
- Part C: Total number of questions to be given are six (3 from CO1 and 3 from CO2), out of which student must answer four (2 from CO1 and 2 from CO2). They are numerical answer type / fully elaborative type (**Not More Than 70 Words for Question**) *, each carrying 10 marks. Total 40 marks.

Mid Term II (Total 120 Marks, 2.5 HRS., Syllabus from Unit-2)

- Part A: Total number of questions to be given are ten (5 from CO3 and 5 from CO4), each carrying 4 marks and are compulsory to attend. There is no choice. They are short answer type questions (**Not More Than 25 Words For both Question & Answer**), no objective type or fill in the blanks. Total 40 marks.
- Part B: Total number of questions to be given are six (3 from CO3 and 3 from CO4), out of which student has to answer four (2 from CO3 and 2 from CO4). They are long answer type (**Not More Than 50 Words for Question**), each carrying 7 marks. Total 28 marks.
- Part C: Total number of questions to be given are six (3 from CO3 and 3 from CO4), out of which student has to answer four (2 from CO3 and 2 from CO4). They are numerical answer type / fully elaborative type (**Not More Than 70 Words For Question**) *, each carrying 13 marks. Total 52 marks.

Mid Term III (Total 120 Marks, 2.5 HRS., Syllabus from Unit-3)

- Part A: Total number of questions to be given are ten (5 from CO5 and 5 from CO6), each carrying 4 marks and are compulsory to attend. There is no choice. They are short answer type questions (**Not More Than 25 Words For both Question & Answer**), no objective type or fill in the blanks. Total 40 marks.
- Part B: Total number of questions to be given are six (3 from CO5 and 3 from CO6), out of which student must answer four (2 from CO5 and 2 from CO6). They are long answer type (**Not More Than 50 Words for Question**), each carrying 7 marks. Total 28 marks.
- Part C: Total number of questions to be given are six (3 from CO5 and 3 from CO6), out of which student must answer four (2 from CO5 and 2 from CO6). They are numerical answer type / fully elaborative type (**Not More Than 70 Words for Question**) *, each carrying 13 marks. Total 52 marks.

* **LIST OF ELABORATIVE THEORY QUESTION SUBJECTS: NO SUBJECT UNDER CREDIT FOUR**

Instructions For Faculties:

There should be total 6 Course Outcomes (COs) for each subject.

- Mid Term Question Papers are to be submitted as per Course Outcomes (COs) which should be divided equally in Part A, Part B and Part C according to Mid Term Examination and Credit Point.
- In Mid Term-1, the questions are to be given from CO1 and CO2. In Mid Term-2, the questions are to be given from CO3 and CO4. Similarly, in Mid Term-3, the questions are to be given from CO5 and CO6.



- FACULTY MEMBERS, PLEASE ENSURE EXCEPT ABOVE LISTED SUBJECTS, NO THEORITICAL ELABORATIVE QUESTION SHOULD BE GIVEN IN PART 'C' OF QUESTION PAPER

INSTRUCTION FOR STUDENTS

- STUDENT IS ALLOWED TO ENTER LATE NOT MORE THAN 15 MIN AFTER STARTING OF EXAM, AND MAY LEAVE THE EXAM HALL ON EXPIRY OF ATLEAST OF 1 Hr FROM THE STARTING TIME OF EXAMINATION.

QUESTION PAPER AND STUDENTS DETAILS

Type of Exam	Mid Term 2	Date of Submission	22/07/2021
Name of Faculty	Mr. Yatan	Date of Examination	26/07/2021
Course	B.Tech (Aeronautical Engineering)	Semester	SEMESTER : 2
Batch	Twentieth (20)	Subject	2 FY2 - 02 Engineering Physics (Cr 4)

COURSE OUTCOMES FOR REFERENCE TO FRAME QUESTION PAPER

(Faculties are required to mention relevant Course Outcome number against the respective question in QP)

Course Outcome	CO 3. Summarize the basics of oscillations, optics and optical fibers in the communication field. CO 4. Demonstrate the importance of LASER and its application in field of Science, and Engineering.		
Email I'd	yatannagpal@soaneemrana.org	Phone No.	798-226-2196
Student Name		Student Reg No.	

Part A

All the questions are compulsory to attend.

1. CHOOSE COURSE OUTCOME (CO) NUMBER ACCORDING TO THE TYPE OF MIDTERM, AS PER INSTRUCTIONS ABOVE.	3		
Question : 1	Define optical fiber and state the principle of optical fiber.		
18	Optical fiber as optical wave guide	Y.C. Bhatt, Ashirwad publication	
Question : 2	Define visibility as a measure of coherence.		
17	Visibility as a measure of coherence and spectral purity	Y.C. Bhatt, Ashirwad publication	
Question : 3	Define temporal coherence and spatial coherence.		
16	Coherence and Optical Fibers: Spatial and temporal coherence	Y.C. Bhatt, Ashirwad publication	
Question : 4	Define numerical aperture and acceptance angle.		



19	Maximum angle of acceptance and applications of optical fiber	Y.C. Bhatt, Ashirwad publication	
Question : 5	State the components of optical fiber.		
17	Components of optical fiber	Y.C. Bhatt, Ashirwad publication	
2. CHOOSE COURSE OUTCOME (CO) NUMBER ACCORDING TO THE TYPE OF MIDTERM, AS PER INSTRUCTIONS ABOVE.			4
Question : 6	Give the principle of He-Ne laser.		
23	Construction and working of He-Ne laser	Y.C. Bhatt, Ashirwad publication	
Question : 7	Define induced emission, induced absorption and spontaneous emission.		
22	Einstein's coefficients, Properties of Laser beam	Y.C. Bhatt, Ashirwad publication	
Question : 8	Define the term LASER.		
20	Laser: Einstein's Theory of laser action	Y.C. Bhatt, Ashirwad publication	
Question : 9	Define amplification of light and population inversion.		
22	Amplification of light by population inversion, Components of laser	Y.C. Bhatt, Ashirwad publication	
Question : 10	State the components of Laser.		
23	Components of LASER	Y.C. Bhatt, Ashirwad publication	

Part B

FOR MIDTERM 1 - Part B: Total number of questions to be given are six (3 from CO1 and 3 from CO2), out of which student must answer four (2 from CO1 and 2 from CO2).

FOR MIDTERM 2 - Part B: Total number of questions to be given are six (3 from CO3 and 3 from CO4), out of which student must answer four (2 from CO3 and 2 from CO4).

FOR MIDTERM 3 - Part B: Total number of questions to be given are six (3 from CO5 and 3 from CO6), out of which student has to answer four (2 from CO5 and 2 from CO6).

3. CHOOSE COURSE OUTCOME (CO) NUMBER ACCORDING TO THE TYPE OF MIDTERM, AS PER INSTRUCTIONS ABOVE.			3
Question : 1	Explain the principle of light transmission in optical fiber.		
19	Maximum angle of acceptance and applications of optical fiber	Y.C. Bhatt, Ashirwad publication	
Question : 2	Explain the components of optical fiber.		
18	Optical fiber as optical wave guide	Y.C. Bhatt, Ashirwad publication	



Question : 3	Explain the advantages and applications of optical fiber.		
19	Maximum angle of acceptance and applications of optical fiber	Y.C. Bhatt, Ashirwad publication	
4. CHOOSE COURSE OUTCOME (CO) NUMBER ACCORDING TO THE TYPE OF MIDTERM, AS PER INSTRUCTIONS ABOVE.			4
Question : 4	Explain the construction of He-Ne laser.		
23	Construction and working of He-Ne laser	Y.C. Bhatt, Ashirwad publication	
Question : 5	Describe the terms in brief: stimulated emission and spontaneous emission. Also establish the relationship between their Einstein's coefficients.		
22	stimulated emission and spontaneous emission	Y.C. Bhatt, Ashirwad publication	
Question : 6	Explain the characteristics of LASER.		
20	Laser: Einstein's Theory of laser action	Y.C. Bhatt, Ashirwad publication	
Question : 7 (Old Pattern)			

Part C

FOR MIDTERM 1 - Part C: Total number of questions to be given are six (3 from CO1 and 3 from CO2), out of which student must answer four (2 from CO1 and 2 from CO2).

FOR MIDTERM 2 - Part C: Total number of questions to be given are six (3 from CO3 and 3 from CO4), out of which student must answer four (2 from CO3 and 2 from CO4).

FOR MIDTERM 3 - Part C: Total number of questions to be given are six (3 from CO5 and 3 from CO6), out of which student has to answer four (2 from CO5 and 2 from CO6).

5. CHOOSE COURSE OUTCOME (CO) NUMBER ACCORDING TO THE TYPE OF MIDTERM, AS PER INSTRUCTIONS ABOVE.			3
Question : 1	Derive a relation between coherence length and line width.		
16	Coherence and Optical Fibers: Spatial and temporal coherence: Coherence length; Coherence time	Y.C. Bhatt, Ashirwad publication	
Question : 2	Derive the expression of numerical aperture.		
19	Acceptance angle, Numerical aperture	Y.C. Bhatt, Ashirwad publication	
Question : 3	Derive the expression of acceptance angle.		
19	Acceptance angle, Numerical aperture	Y.C. Bhatt, Ashirwad publication	



6. CHOOSE COURSE OUTCOME (CO) NUMBER ACCORDING TO THE TYPE OF MIDTERM, AS PER INSTRUCTIONS ABOVE.

4

Question : 4

Explain in detail about the principle and working of semiconductor laser.

24

Construction and working of Semiconductor laser

Y.C. Bhatt, Ashirwad publication

Question : 5

Explain in brief about all the various components of LASER.

22

Amplification of light by population inversion, Components of laser

Y.C. Bhatt, Ashirwad publication

Question : 6

Describe in brief about the theory and operating principle of He-Ne laser with the help of a diagram.

23

Construction and working of He-Ne laser

Y.C. Bhatt, Ashirwad publication

Upload Scanned Document In Case of Numerical or Diagram For Any of The Above Questions. (Mention question number with relevant fig / numerical / equations. Max 150 KB)

I have scrutinized the question paper. There is no spelling mistake or any type of irrelevant question.

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