



Question Paper For Internal Assessment Examination (Theory) - Credit 4 / 50 /

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 3	Date of Submission	18/08/2021
Name of Faculty	Mr. Yatan	Date of Examination	23/08/2021
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 5. Apply quantum mechanical principles towards the formation of energy bands in crystalline materials. CO 6. Identify the different principles of electromagnetism and its applications in engineering disciplines.		
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.	5		
Question : 1	Define conductivity in solids.		
31	Conductivity in semiconductors	Y.C. Bhatt, Ashirwad publication	
Question : 2	State the effect of temperature on conductivity in case of solids.		
31	Conductivity in semiconductors	Y.C. Bhatt, Ashirwad publication	
Question : 3	Differentiate between insulator and semiconductor.		
29	Intrinsic and extrinsic semiconductors	Y.C. Bhatt, Ashirwad publication	
Question : 4	Define energy band in solids and State the Pauli exclusion principle.		



27	Energy bands in solids	Y.C. Bhatt, Ashirwad publication	
Question : 5	State the types of bonding in solids.		
26	Bonding in solids: covalent and metallic bonding	Y.C. Bhatt, Ashirwad publication	
2. CHOOSE COURSE OUTCOME (CO) NUMBER ACCORDING TO THE TYPE OF MIDTERM, AS PER INSTRUCTIONS ABOVE.			6
Question : 6	State the meaning of curl and divergence. Also give their significance.		
36	Divergence and curl of static magnetic field	Y.C. Bhatt, Ashirwad publication	
Question : 7	State the Bio-Savart law and also state the significance of Bio-Savart law.		
35	Bio-Savart law	Y.C. Bhatt, Ashirwad publication	
Question : 8	Write the Laplace equation for electrostatic potential.		
34	Laplace's and Poisson's equations for electrostatic potential	Y.C. Bhatt, Ashirwad publication	
Question : 9	Define electromagnetism.		
33	Introduction to Electromagnetism: Divergence and curl of electrostatic field	Y.C. Bhatt, Ashirwad publication	
Question : 10	Define Poynting vector and flow of energy.		
40	Poynting vector and flow of energy	Y.C. Bhatt, Ashirwad publication	
Part B			
<p>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).</p> <p>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).</p> <p>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).</p>			
3. CHOOSE COURSE OUTCOME (CO) NUMBER ACCORDING TO THE TYPE OF MIDTERM, AS PER INSTRUCTIONS ABOVE.			5
Question : 1	Explain the theory of hall effect.		
32	Hall Effect: Theory	Y.C. Bhatt, Ashirwad publication	
Question : 2	Explain the concept of fermi energy if probability of occupation of electrons is at $T < 0$ K.		
30	Fermi dirac distribution function and Fermi energy	Y.C. Bhatt, Ashirwad publication	



Question : 3	Explain the concept of formation of energy bands in solids.		
27	Energy bands in solids	Y.C. Bhatt, Ashirwad publication	
4. CHOOSE COURSE OUTCOME (CO) NUMBER ACCORDING TO THE TYPE OF MIDTERM, AS PER INSTRUCTIONS ABOVE.			6
Question : 4	Define Faraday's law and explain the characteristics of Faraday's law.		
37	Faraday's law	Y.C. Bhatt, Ashirwad publication	
Question : 5	Explain the concept of displacement current from time dependent magnetic field.		
38	Displacement current and magnetic field arising from time dependent	Y.C. Bhatt, Ashirwad publication	
Question : 6	Explain the significance of Del operator.		
33	Introduction to Electromagnetism: Divergence and curl of electrostatic field	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.			5
Question : 1	Explain in brief the concept of conductivity in semiconductors and also explain its classification.		
31	Conductivity in semiconductors	Y.C. Bhatt, Ashirwad publication	
Question : 2	Obtain an expression of hall effect. Deduce an expression of hall coefficient and state the applications of hall effect.		
32	Hall Effect: Theory, Hall Coefficient and applications	Y.C. Bhatt, Ashirwad publication	
Question : 3	Explain in brief about the classification of solids as semiconductor with examples.		



28	Classification of solids as Insulators, Semiconductors and Conductors	Y.C. Bhatt, Ashirwad publication	
6. CHOOSE COURSE OUTCOME (CO) NUMBER ACCORDING TO THE TYPE OF MIDTERM, AS PER INSTRUCTIONS ABOVE.			6
Question : 4	Deduce the expression of Maxwell's equations for static fields in integral form.		
39	Electric field, Maxwell's equations	Y.C. Bhatt, Ashirwad publication	
Question : 5	Deduce an expression of Bio-Savart law of magnetic field intensity due to current carrying element.		
35	Bio-Savart law	Y.C. Bhatt, Ashirwad publication	
Question : 6	Deduce the expression of power flow in concept of poynting vector.		
40	Flow of energy and Poynting vector	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.			
<p>Corporate Office : H 974, Palam Extension, Part 1, Sector 7, Dwarka, New Delhi 110077 Ph. 011-25084354, 9811315363, 9314009020, E-Mail: info@soaneemrana.org, ccashoka@gmail.com Website: www.soaneemrana.org, www.soaneemrana.org, www.soadelhi.com</p>			

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