

School of Aeronautics (Neemrana)

I-04, RIICO Industrial Area, Neemrana, Dist. Alwar, Rajasthan

Approved by Director General of Civil Aviation, Govt. of India, All India Council for Technical Education
Ministry of HRD, Govt of India & Affiliated to Rajasthan Technical University, Kota & BTU, Bikaner Rajasthan

Question Paper For Internal Assessment Examination (Theory) - Credit 2 / 122

Instructions for Students / Faculty

Mid Term I (Total 40 Marks, 1.5 HRS., Syllabus from Unit-1)

- Part A: Total number of questions to be given are four (2 from CO1 and 2 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 8 marks.
- Part B: Total number of questions to be given are six (3 from CO1 and 3 from CO2), out of which student has to answer four (2 from CO1 and 2 from CO2). They are long answer type (**Not More Than 50 Words for Question Only**), each carrying 4 marks. Total 16 marks.
- Part C: Total number of questions to be given are four (2 from CO1 and 2 from CO2), out of which student has to answer two (1 from CO1 and 1 from CO2). They are numerical answer type / fully elaborative type* (**Not More Than 70 Words for Question Only**), each carrying 8 marks. Total 16 marks.

Mid Term II (Total 60 Marks, 2 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 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 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 Only**), each carrying 4 marks. Total 16 marks.
- Part C: Total number of questions to be given are four (2 from CO3 and 2 from CO4), out of which student has to answer any two (1 from CO3 and 1 from CO4). They are numerical answer type / fully elaborative type (**Not More Than 70 Words For Question Only**)*, each carrying 12 marks. Total 24 marks.

Mid Term III (Total 60 Marks, 2 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 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 CO5 and 3 from CO6), out of which student has to answer four (2 from CO5 and 2 from CO6). They are long answer type (**Not More Than 50 Words for Question Only**), each carrying 4 marks. Total 16 marks.
- Part C: Total number of questions to be given are four (2 from CO5 and 2 from CO6), out of which student has to answer any two (1 from CO5 and 1 from CO6). They are numerical answer type / fully elaborative type (**Not More Than 70 Words For Question Only**)*, each carrying 12 marks. Total 24 marks.

* LIST OF ELABORATIVE THEORY QUESTION SUBJECTS: 1 FY1 - 04 Communication Skills (Cr 2), 1 FY1 - 05 Human Values (Cr 2), 2 FY1 - 04 Communication Skills (Cr 2), 2 FY1 - 05 Human Values (Cr 2), 3 AN1 - 02 Technical Communication (Cr 2), 4 MH1 - 02 Technical Communications (Cr 2), 4 MH1 - 03 Economics and Financial Accounting (Cr 2), 5 AN5 - 12 Aircraft Maintenance Practices (Cr 2), 6 AN3 - 01 Mechanics of Composite Materials (Cr 2), 6 AN5 - 12 Aircraft Rules and Regulation (Cr 2), 6 MH3 - 01 Automobile Engineering (Cr 2).

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 & Student Details

Type of Exam	Mid Term 3	Date of Submission	19/07/2021
Name of Faculty	GOURAV SARDANA	Date of Examination	26/07/2021
Course	B.Tech (Aeronautical Engineering)	Semester	SEMESTER : 6
Batch	Fifteenth (15)	Subject	6 AN3 - 01 Mechanics of Composite Materials (Cr 2)

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 the Multidirectional Laminates in real time applications. CO 6. Calculate the Mechanical Testing, Failure and Maintenance of Composites materials.		
Email I'd	gouravsardana@soaneemrana.org	Phone No.	925-566-9668
Student Name		Student Reg No.	

Part A

INSTRUCTIONS FOR 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 Lamina and Laminate .

Lesson Plan No. - 18	Topic - Laminate Structure	Source - Agarwal, B.D	CO No. -
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Question : 2 Explain Micro-mechanics of Lamina .

Lesson Plan No. - 18	Topic - Laminate Structure	Source - Agarwal, B.D	CO No. -
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Question : 3 Define cross-ply, and angle ply

Lesson Plan No. - 18	Topic - Laminate Structure	Source - Agarwal, B.D	CO No. -
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Question : 4 EXplain quasi isotropic laminates .

Lesson Plan No. - 19	Topic - Laminate Structure	Source - Composite Material by B.D Agarwal	CO No. -
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Question : 5 Define symmetric laminate structure .

Lesson Plan No. - 21	Topic - aminate Structure	Source - Composite Material by B.D Agarwal	CO No. -
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2. CHOOSE COURSE OUTCOME (CO) NUMBER ACCORDING TO THE TYPE OF MIDTERM, AS PER INSTRUCTIONS ABOVE.

6

Question : 6 Explain Mechanical testing of composite Material

Lesson Plan No. - 30	Topic - Mechanical Testing	Source - Composite Material by B.D Agarwal	CO No. -
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Question : 7 Define Tensile Testing .

Lesson Plan No. - 30	Topic - Mechanical Testing	Source - Composite Material by B.D Agarwal	CO No. -
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Question : 8 Define Failure types in laminates .

Lesson Plan No. - 36	Topic - Laminate Testing	Source - Composite Material by B.D Agarwal	CO No. -
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Question : 9 Define Compressive testing

Lesson Plan No. - 37	Topic - Laminate Testing	Source - Composite Material by B.D Agarwal	CO No. -
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Question : 10 Define Fatigue testing

Lesson Plan No. - 39	Topic - Laminate Testing	Source - Composite Material by B.D Agarwal	CO No. -
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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 has to 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 has to 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.

5

Question : 1 Explain in detail Classical Laminate Theory .

Lesson Plan No. - 19	Topic - Laminate structure	Source - composite Material by B.D Aggarwal	CO No. -
Question : 2	Explain the Matrix for Symmetric laminate with multiple isotropic layers .		
Lesson Plan No. - 19	Topic - Laminate structure	Source - composite Material by B.D Aggarwal	CO No. -
Question : 3	Explain Quasi – isotropic laminate .		
Lesson Plan No. - 21	Topic - Laminate structure	Source - Composite Material by B.D Aggarwal	CO No. -
4. CHOOSE COURSE OUTCOME (CO) NUMBER ACCORDING TO THE TYPE OF MIDTERM, AS PER INSTRUCTIONS ABOVE.			6
Question : 4	Define the Properties of Composites an explain tensile test with diagram .		
Lesson Plan No. - 32	Topic - Laminate testing	Source - Composite Material by B.D Aggarwal	CO No. -
Question : 5	Explain Impact test with diagram .		
Lesson Plan No. - 34	Topic - Laminate testing	Source - Composite Material by B.D Aggarwal	CO No. -
Question : 6	Explain the Inspection and Methodology of composites.		
Lesson Plan No. - 39	Topic - Laminate testing	Source - Composite Material by B.D Aggarwal	CO No. -
Part C			
FOR MIDTERM 1 - Part C: Total number of questions to be given are four (2 from CO1 and 2 from CO2), out of which student has to answer two (1 from CO1 and 1 from CO2). FOR MIDTERM 2 - Part C: Total number of questions to be given are four (2 from CO3 and 2 from CO4), out of which student has to answer any two (1 from CO3 and 1 from CO4). FOR MIDTERM 3 - Part C: Total number of questions to be given are four (2 from CO5 and 2 from CO6), out of which student has to answer any two (1 from CO5 and 1 from CO6).			
5. CHOOSE COURSE OUTCOME (CO) NUMBER ACCORDING TO THE TYPE OF MIDTERM, AS PER INSTRUCTIONS ABOVE.			5
Question : 1	Explain in detail Stress analysis of cross-ply symmetric laminate under in-plane and flexural loading.		
Lesson Plan No. - 25	Topic - Laminate structure	Source - composite Material by B .D Aggarwal	CO No. -
Question : 2	Explain in detail Macro-mechanics of laminate .		
Lesson Plan No. - 26	Topic - Laminate structure	Source - composite Material by B .D Aggarwal	CO No. -
6. CHOOSE COURSE OUTCOME (CO) NUMBER ACCORDING TO THE TYPE OF MIDTERM, AS PER INSTRUCTIONS ABOVE.			6
Question : 3	Explain in detail Damage to laminate structures .		
Lesson Plan No. - 36	Topic - Laminate Testing	Source - composite Material by B .D Aggarwal	CO No. -
Question : 4	Explain in detail Failure types in laminates .		
Lesson Plan No. - 39	Topic - Laminate Testing	Source - composite Material by B .D Aggarwal	CO No. -

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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