Question Paper For Internal Assessment Examination (Theory) - Credit 3 / 129 /

NAME OF STUDY CENTER: SCHOOL OF AERONAUTICS, NEEMRANA

Instructions for Students / Faculty

Mid Term I (Total 60 Marks, 2 HRS. Syllabus from Unit-1)

- Part A: Total number of questions to be given are six (3 from CO1 and 3 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 12 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)**, each carrying 4 marks. Total 16 marks.

- Part C: 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 numerical answer type / fully elaborative type (**Not More Than 70 Words For Question)***, each carrying 8 marks. Total 32 marks.

Mid Term II (Total 90 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 3 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 30 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 6 marks. Total 24 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 any 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 9 marks. Total 36 marks.

Mid Term III (Total 90 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 3 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 30 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)**, each carrying 6 marks. Total 24 marks.

- 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). They are numerical answer type / fully elaborative type (**Not More Than 70 Words For Question)***, each carrying 9 marks. Total 36 marks.

*** LIST OF ELABORATIVE THEORY QUESTION SUBJECTS**: 3 MH4 - 07 Manufacturing Process, 4 AN4 - 06 Aircraft Materials and Processes (Cr 3), 5 AN4 - 05 Aircraft System (Cr 3), 6 AN4 - 05 Avionics-I (Cr 3), 6 MH4 - 03 Applied Hydraulics & Pneumatics (Cr 3), 6 MH5 - 11 Principles of Management (Cr 3), 6 MH5 - 13 Aircraft Electronics System (Cr 3), 7 AN5 - 12 Maintenance of Airframe and System (Cr 3), 7 AN5 - 13 Helicopter Theory (Cr 3), 7 AG6 - 60.1 Human Engineering and Safety (Cr 3), 7 ST - 01 Avionics II (Special Theory Subject) (Cr 3), 7 MH5 - 11 Design of Mechatronics Systems (Cr 3), 7 MH5 - 12 Robotics and Machine Vision System (Cr 3), 7 MH6 - 13 Medical Electronics (Cr 3), 7 AN6 - 60.1 Aircraft Avionic System (Cr 3), 8 AN5 - 12 Maintenance of Power Plant and System

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(Cr 3), 8 AN5 - 13 Unmanned Aerial Vehicles & Systems (UAV) (Cr 3), 8 MH5 - 13 Product Development & Launching (Cr 3), 8 EC6 - 60.2 Robotics and control (Cr 3)

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,**

QUESTION PAPER & STUDENTS DETAILS

Type of Exam	Mid Term 2	**Date of Submission**	22/07/2021
Name of Faculty	Mr. Yatan	**Date of Examination**	28/07/2021
Course	B.Tech (Aeronautical Engineering)	**Semester**	SEMESTER : 4
Batch	Combined Batches 18, 19, SF 2	**Subject**	4 AN4 - 06 Aircraft Materials and Processes (Cr 3)-

COURSE OUTCOMES FOR REFERENCE TO FRAME QUESTION PAPERS
(Faculties are required to mention Course Outcome Number against each part of the question paper)

Course Outcome	CO3: Explain the Mechanical Behaviour of ferrous and nonferrous aircraft materials. CO4: Analyze the various types of Corrosion and Heat Treatment of Metals & Alloys.		
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.			CO 3
Question : 1	Define fatigue strength.		
18	Fatigue test	Aircraft Metallurgy by Arjun Singh	

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Question : 2	State Bauschinger's effect.		
20	Bauschinger's effect	Aircraft Metallurgy by Arjun Singh	
Question : 3	Define strain hardening.		
19	Strain hardening	Aircraft Metallurgy by Arjun Singh	
Question : 4	Define tensile and compressive strength.		
16	Tensile and Compressive test	Aircraft Metallurgy by Arjun Singh	
Question : 5	State various mechanical properties of materials.		
16	mechanical properties of materials	Aircraft Metallurgy by Arjun Singh	
2. CHOOSE COURSE OUTCOME (CO) NUMBER ACCORDING TO THE TYPE OF MIDTERM, AS PER INSTRUCTIONS ABOVE.			CO 4
Question : 6	State the various types of corrosion.		
22	Types of corrosion	Aircraft Metallurgy by Arjun Singh	
Question : 7	Define corrosion.		
22	Corrosion	Aircraft Metallurgy by Arjun Singh	
Question : 8	Name some corrosion resistant materials used for aircraft vehicle.		
24	Corrosion resistant materials used for aircraft vehicle	Aircraft Metallurgy by Arjun Singh	
Question : 9	Define stress corrosion cracking.		
23	Stress corrosion cracking	Aircraft Metallurgy by Arjun Singh	
Question : 10	State the meaning of the term alloying.		
24	Alloying	Aircraft Metallurgy by Arjun Singh	

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).

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3. CHOOSE COURSE OUTCOME (CO) NUMBER ACCORDING TO THE TYPE OF MIDTERM, AS PER INSTRUCTIONS ABOVE.			CO 3
Question : 1	Explain the mechanical properties of metals.		
15	Mechanical properties of metals	Aircraft Metallurgy by Arjun Singh	
Question : 2	Write a short note on Impact testing.		
17	Impact testing	Aircraft Metallurgy by Arjun Singh	
Question : 3	Explain the process of Fatigue and Creep testing of materials.		
18	Fatigue and Creep testing	Aircraft Metallurgy by Arjun Singh	
4. CHOOSE COURSE OUTCOME (CO) NUMBER ACCORDING TO THE TYPE OF MIDTERM, AS PER INSTRUCTIONS ABOVE.			CO 4
Question : 4	Explain the heat treatment of aluminium alloys.		
25	Heat treatment of carbon steels and aluminium alloys	Aircraft Metallurgy by Arjun Singh	
Question : 5	Explain the various types of corrosion.		
22	Types of corrosion	Aircraft Metallurgy by Arjun Singh	
Question : 6	Explain the effect of corrosion on mechanical properties such as hardness and tensile strength of materials.		
23	Effect of corrosion on mechanical properties	Aircraft Metallurgy by Arjun Singh	
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.		CO 3
Question : 1	Explain in detail the flaw detection of materials and components.	

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20	Notch effect testing	Aircraft Metallurgy by Arjun Singh	
Question : 2	Explain in detail about the strain hardening process.		
18	Strain hardening	Aircraft Metallurgy by Arjun Singh	
Question : 3	Explain in details with the help of a diagram about the Bauschinger's effect.		
19	Bauschinger's effect	Aircraft Metallurgy by Arjun Singh	
6. CHOOSE COURSE OUTCOME (CO) NUMBER ACCORDING TO THE TYPE OF MIDTERM, AS PER INSTRUCTIONS ABOVE.			CO 4
Question : 4	Discuss in detail about the identification of ferrous metals.		
26	Identification of ferrous and non-ferrous metals	Aircraft Metallurgy by Arjun Singh	
Question : 5	Elaborate the heat treatment of magnesium and titanium alloys.		
25	Heat treatment of magnesium and titanium alloys	Aircraft Metallurgy by Arjun Singh	
Question : 6	Explain in detail the effect of alloying treatment such as galvanizing and electroplating.		
27	Effect of alloying treatment	Aircraft Metallurgy by Arjun Singh	
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.			