



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



Question Paper For Internal Assessment Examination (Theory) - Credit 3 / 136 /

NAME OF STUDY CENTER: SCHOOL OF AERONAUTICS, NEEMRANA(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 3	Date of Submission	18/08/2021
Name of Faculty	Mr. Yatan	Date of Examination	25/08/2021
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	CO5: Explain the application of Ceramics and Composites materials in aircraft construction. CO6: Demonstrate the High Temperature Materials Characterization.		
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 5		
Question : 1	Name some ceramic materials generally used in several fields.		
30	Modern ceramic materials, cements	Kingery, publication	Wiley



Question Paper For Internal Assessment Examination (Theory) - Credit 3 / 136 /

NAME OF STUDY CENTER: SCHOOL OF AERONAUTICS, NEEMRANA

Question : 2	Define powder metallurgy.		
29	Powder metallurgy	Kingery, publication	Wiley
Question : 3	Name the types of glass fiber and composites.		
31	Production of semi fabricated forms, plastic and rubber, glass & carbon composites	Kingery, publication	Wiley
Question : 4	Define ceramics..		
28	Ceramics and Composites: Introduction of ceramics and composites	Kingery, publication	Wiley
Question : 5	Define composites.		
28	Ceramics and Composites: Introduction of ceramics and composites	Kingery, publication	Wiley
2. CHOOSE COURSE OUTCOME (CO) NUMBER ACCORDING TO THE TYPE OF MIDTERM, AS PER INSTRUCTIONS ABOVE.			CO 6
Question : 6	Define super alloys.		
40	Super alloys	Kingery, publication	Wiley
Question : 7	Define thermal barrier coatings.		
39	Thermal protection systems	Kingery, publication	Wiley
Question : 8	Name some mechanical properties of high temperature resisting materials.		
37	Mechanical properties of high temperature resisting materials	Kingery, publication	Wiley
Question : 9	Name the high temperature resisting materials commonly used in aircrafts.		
35	The high temperature resisting materials	Kingery, publication	Wiley
Question : 10	Give the classification of high temperature material use in aircraft industry.		
34	high temperature material use in aircraft industry	Kingery, publication	Wiley

PART B



Question Paper For Internal Assessment Examination (Theory) - Credit 3 / 136 /

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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.

CO 5

Question : 1

Explain briefly, the classification of composite materials.

32

Fabrication process involved in metal matrix composites

Kingery, publication

Wiley

Question : 2

Explain the concept of ceramics.

28

Ceramics and Composites: Introduction of ceramics and composites

Kingery, publication

Wiley

Question : 3

Explain various stages of powder metallurgy process.

29

Powder metallurgy

Kingery, publication

Wiley

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

CO 6

Question : 4

Explain various methods for testing of materials.

35

Production and characteristics, methods & testings

Kingery, publication

Wiley

Question : 5

Explain the classification of high temperature material use in aircraft industry.

34

Classification of high temperature material use in aircraft industry

Kingery, publication

Wiley

Question : 6

Explain briefly, the thermal properties of high temperature materials.

36

Thermal properties at elevated temperature

Kingery, publication

Wiley

Question : 7 (Old Pattern)**PART C**



Question Paper For Internal Assessment Examination (Theory) - Credit 3 / 136 /

NAME OF STUDY CENTER: SCHOOL OF AERONAUTICS, NEEMRANA

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 5

Question : 1

Explain in detail the application of aircraft vehicle design.

32

Application of aircraft vehicle design

Kingery,
publication

Wiley

Question : 2

Describe shape memory alloys in detail.

31

Shape memory alloys

Kingery,
publication

Wiley

Question : 3

Explain in detail the open and closed mould process.

33

Open and closed mould process

Kingery,
publication

Wiley

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

CO 6

Question : 4

Explain in detail the production and characteristics of high temperature materials used in aircrafts.

36

Production and characteristics

Kingery,
publication

Wiley

Question : 5

Explain briefly the concept of super alloys.

39

Super alloys

Kingery,
publication

Wiley

Question : 6

Describe in detail the thermal protection systems of aircraft.

38

Thermal protection systems

Kingery,
publication

Wiley

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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