



Question Paper For Internal Assessment Examination (Theory) - Credit 3 / 77 /

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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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	Internal Improvement Exam	Date of Submission	14/03/2021
Name of Faculty	Mr. Sukumar	Date of Examination	18/03/2021
Course	B.Tech (Aeronautical Engineering)	Semester	SEMESTER : 5
Batch	Combined Batches 15, 16, 17, SF 1	Subject	5 AN4 - 05 Aircraft System (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	<p>COURSE OUTCOME</p> <p>Upon completion of the course, Students will be able to</p> <p>CO 1. Interpret the construction and working principle of conventional control system and engine control systems of an aircraft.</p> <p>CO 2. Explain the functions of various types of aircraft communication and navigation systems.</p> <p>CO 3. Compare the features of various hydraulic & pneumatic systems of an aircraft and operation of aircraft landing gear system.</p> <p>CO 4. Analyze the performance of various types of Fuel Systems used on an aircraft.</p> <p>CO 5. Identify the various auxiliary systems and its operation in an aircraft.</p> <p>CO 6. Describe the general maintenance practices carried out on an aircraft.</p>		
Email I'd	sukumar@soaneemrana.org	Phone No.	790-425-6314
Student Name		Student Reg No.	

PART A**All the questions are compulsory to attend.**



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NAME OF STUDY CENTER: SCHOOL OF AERONAUTICS, NEEMRANA**1. CHOOSE COURSE OUTCOME (CO) NUMBER ACCORDING TO THE TYPE OF MIDTERM, AS PER INSTRUCTIONS ABOVE.**

Question : 1	List down the the High lift producing devices.		
2	Flight control system	A/C System by Ion Mohir	
Question : 2	Define Exhaust gas flow.		
5	Engine Control system	A/C System by Ion Mohir	
Question : 3	Define Doppler navigation system.		
10	Navigation system	A/C System by Ion Mohir	
Question : 4	Define hydraulic actuator.		
11	Hydraulic System	A/C System by Ion Mohir	
Question : 5	Define EFIS, EICAS & ECAM.		
14	Pneumatic System	A/C System by Ion Mohir	

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

Question : 6	Define Steering Damper.		
18	Landing Gear.	A/C System by Ion Mohir	
Question : 7	Define the Environmental Control System (ECS) in aircraft.		
26	ECS	A/C System by Ion Mohir	
Question : 8	Define Bootstrap system.		
29	Anti Icing system	A/C System by Ion Mohir	
Question : 9	Define OUTRIGGER.		
33	General Maintenance Practices	A/C System by Ion Mohir	
Question : 10	Define the selection procedure of Lubrication to an aircraft.		
37	General Maintenance Practices	A/C System by Ion Mohir	

PART B



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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.

Question : 1 Explain about the construction and working of Power assisted Flight control surfaces.

2 Flight control system A/C System by Ion Mohir

Question : 2 Discuss about the Engine Control System Parameters.

5 Engine Control System A/C System by Ion Mohir

Question : 3 Summarize the about the characteristics of Hydraulic Fluids.

11 Hydraulic Systems A/C System by Ion Mohir

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

Question : 4 Summarize the about the different types of valves used in Pneumatic system.

15 Pneumatic System A/C System by Ion Mohir

Question : 5 Demonstrate about the Chemical Oxygen Systems in an aircraft.

27 Auxiliary system A/C System by Ion Mohir

Question : 6 Summarize about the Hydraulic contamination control program.

34 General Maintenance Practices A/C System by Ion Mohir

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).



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NAME OF STUDY CENTER: SCHOOL OF AERONAUTICS, NEEMRANA**5. CHOOSE COURSE OUTCOME (CO) NUMBER ACCORDING TO THE TYPE OF MIDTERM, AS PER INSTRUCTIONS ABOVE.**

Question : 1	Explain about the Full authority engine control system with electrical throttle signalling with the sketch.		
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5	Engine Control system	A/C System by Ion Mohir	
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Question : 2	Demonstrate in detail about the function of ILS and its components wit a block diagram.		
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9	Navigation system	A/C System by Ion Mohir	
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Question : 3	Demonstrate in detail about the A typical dual channel hydraulic system.		
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12	Hydraulic System	A/C System by Ion Mohir	
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6. CHOOSE COURSE OUTCOME (CO) NUMBER ACCORDING TO THE TYPE OF MIDTERM, AS PER INSTRUCTIONS ABOVE.

Question : 4	Elaborate in detail about the Landing-Gear Components and its functions.		
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17	Landing-Gear	A/C System by Ion Mohir	
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Question : 5	Explain about the Thermal Electric Anti-Icing system of an aircraft.		
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29	Anti Icing system	A/C System by Ion Mohir	
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Question : 6	Demonstrate the process of Fueling while aircraft mounted auxiliary power units (APU) are in operation.		
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40	Refueling	A/C System by Ion Mohir	
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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)			
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I have scrutinized the question paper. There is no spelling mistake or any type of irrelevant question.			
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