



Question Paper For Internal Assessment Examination (Theory) - Credit 3 / 127 /

**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**

<b>Type of Exam</b>	Mid Term 3	<b>Date of Submission</b>	21/07/2021
<b>Name of Faculty</b>	Sukumar Dhanapalan	<b>Date of Examination</b>	26/07/2021
<b>Course</b>	B.Tech (Aeronautical Engineering)	<b>Semester</b>	SEMESTER : 8
<b>Batch</b>	Combined Batches 12, 13, 14	<b>Subject</b>	8 AN5 - 12 Maintenance of Power Plant and 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)

<b>Course Outcome</b>	8 AN5 - 12 Maintenance of Power Plant and System (Cr 3)  COURSE OUTCOMES: Upon completion of this course, Students will be able to CO 1: Identify the various components of Piston Engine & Jet Engine Fuel Systems. CO 2: Summarize the operation and working principle of a Piston Engine System. CO 3: Demonstrate the construction and working principle of Supercharging and Turbocharging system. CO 4: Illustrate about the performance and basic operations of the Jet Engine Systems. CO 5: Explain the various Power Augmentation Systems and methods involved in an aircraft power plants. CO 6: Describe about the Power plant Installation procedure in an aircraft.		
<b>Email I'd</b>	sukumar@soaneemrana.org	<b>Phone No.</b>	790-425-6314
<b>Student Name</b>		<b>Student Reg No.</b>	



## Question Paper For Internal Assessment Examination (Theory) - Credit 3 / 127 /

**NAME OF STUDY CENTER: SCHOOL OF AERONAUTICS, NEEMRANA****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**

List down the application of E.E.C.

26

Engine Control

Aero Engine by SOA.

**Question : 2**

Name the different methods of starting of gas turbine engine.

28

Method of starting the GTEs.

Aero Engine by SOA.

**Question : 3**

Define slapping.

30

Ground running of GTEs

Aero Engine by SOA.

**Question : 4**

List the Disadvantage of propeller engine.

31

Propeller engine

Aero Engine by SOA.

**Question : 5**

How unbalanced condition of propeller can be corrected.

32

Propeller balancing

Aero Engine by SOA.

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

CO 6

**Question : 6**

Why pitch reversing is required.

35

Reverse Pitch Propellers

Aero Engine by SOA.

**Question : 7**

Define Beta control.

36

Reverse Pitch Propellers

Aero Engine by SOA.

**Question : 8**

List the Type of thrust reversing equipment.

37

Propellers

Aero Engine by SOA.

**Question : 9**

What is application of de-icing system of propellers.

39

De-icing system

Aero Engine by SOA.

**Question : 10**

List down the different types of anti-icing system in an aircraft.

40

Anti- icing system

Aero Engine by SOA.

**PART B**



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**NAME OF STUDY CENTER: SCHOOL OF AERONAUTICS, NEEMRANA**

**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** Demonstrate about the application and working of Hydraulic starter of gas turbine engine.

24 GTE Aero Engine by SOA.

**Question : 2** How the testing & adjustments are carried out on running engine.

28 Ground running of GTEs Aero Engine by SOA.

**Question : 3** Explain the working of C.S.U with the help of diagram.

33 Constant speed unit Aero Engine by SOA.

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

CO 6

**Question : 4** Briefly explain what additional features includes in propeller control unit.

34 PCU Aero Engine by SOA.

**Question : 5** Briefly explain, how the electrically operated propellers are controlled on multi engine aircraft.

37 Propellers Aero Engine by SOA.

**Question : 6** How propeller anti-icing functions with electrical heating system ?

38 Anti- icing system Aero Engine by SOA.

**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 5



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**NAME OF STUDY CENTER: SCHOOL OF AERONAUTICS, NEEMRANA**

<b>Question : 1</b>	What are line maintenance and heavy maintenance? Explain in detail about maintenance practices.		
28	Maintenance Practices	Aero Engine by SOA.	
<b>Question : 2</b>	Discuss about the selection criteria of the blades for the propeller.		
30	Propeller Engine	Aero Engine by SOA.	
<b>Question : 3</b>	Explain in detail about the types of propeller balancing.		
32	Propeller balancing	Aero Engine by SOA.	
<b>6. CHOOSE COURSE OUTCOME (CO) NUMBER ACCORDING TO THE TYPE OF MIDTERM, AS PER INSTRUCTIONS ABOVE.</b>			CO 6
<b>Question : 4</b>	Briefly explain about 'Beta' control of reverse pitch propellers.		
34	Reverse pitch	Aero Engine by SOA.	
<b>Question : 5</b>	Explain the maintenance procedure of the propellers.		
35	Propellers	Aero Engine by SOA.	
<b>Question : 6</b>	Explain turbo propeller reverse pitch system.		
37	Propellers	Aero Engine by SOA.	
<b>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)</b>			
<b>I have scrutinized the question paper. There is no spelling mistake or any type of irrelevant question.</b>			

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