

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 3 / 27 /

Instructions For Students / Faculty Mid Term I (Total 60 Marks, 2 HRS. Syllabus From Beginning Of Session)

• Part A: Total number of questions to be given are five, 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 15 marks.

• Part B: Total number of questions to be given are six, out of which student has to answer any four. 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 four, out of which student has to answer any three. They are numerical answer type / fully elaborative type (**Not More Than 70 Words For Question**)*, each carrying 7 marks. Total 21 marks.

Mid Term II & III (Total 90 Marks, 2.5 HRS. Syllabus From Beginning Of Session)

• Part A: Total number of questions to be given are ten, 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 seven, out of which student has to answer any five. They are long answer type (**Not More Than 50 Words For Question**), each carrying 6 marks. Total 30 marks.

• Part C: Total number of questions to be given are five, out of which student has to answer any four. They are numerical answer type / fully elaborative type (**Not More Than 70 Words For Question**)*, each carrying 10 marks. Total 40 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 (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)

FACULTY MEMBERS, PLEASE ENSURE EXCEPT ABOVE LISTED SUBJECTS, NO THEORITICAL ELABORATIVE QUESTION SHOULD BE GIVEN IN PART 'C' OF QUESTION PAPER

Question Paper & Student Details

Mid Term	Mid Term 2	Date of Submission	19/08/2020
Name of Faculty	Ms. Sonali Singh	Date of Examination	25/08/2020
Course	B.Tech (Aeronautical Engineering, Second Shift)	Semester	SEMESTER : 5
Batch	Combined Batches 15, 16, 17, SF 1	Subject	5 AN4 - 04 Propulsion-I (Cr 3)

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	COURSE OUTCOME Upon completion of the course, Students will be able to CO1: Predict performance characteristics of Aircraft Piston Engines based upon the cycle operation. CO2: Interpret the concept of Engine Performance Parameters and operating characteristics. CO3: Gain insights into Propeller Fundamentals and Construction Methods. CO4: Investigate the Propeller Pitch Control and Propeller Synchronizing in aircraft power plant. CO5: Demonstrate about the Propeller Maintenance procedure. CO6: Explain the working of Gas Turbine Engines basic principle and performance parameters.		
Email I'd	sonali@soaneemrana.org	Phone No.	900-324-6157
Student Name		Student Reg No.	

Part A

Question : 1	What is blade element theory?		
14	Blade element	Frank E Hitchens	3
Question : 2	Define propeller slip.		

15	Propeller slip	Frank E Hitchens	3
Question : 3	Define aerodynamic twisting moment.		
16	Propeller	Frank E Hitchens	3
Question : 4	Define feathering.		
25	Feathering	Frank E Hitchens	4
Question : 5	What is propeller over-speed?		
26	Overspeed	Frank E Hitchens	4
Question : 6	What is the difference between synchronization and synchrophasing?		
27	Synchrophasing Equipment	Frank Delp	4
Question : 7	Define erosion and corrosion.		
29	Erosion and Corrosion	Frank E Hitchens	5
Question : 8	Define de-icing and anti-icing system.		
32	Fluid and electrical de-icing equipment	Frank Delp	5
Question : 9	Write the purpose of governor.		
21	Governor	Frank Delp	3
Question : 10	What is dynamic imbalance?		
28	Static and dynamic balancing	Frank E Hitchens	5
Part B			
Question : 1	Explain in detail about blade element theory.		
14	Blade element	Frank E Hitchens	3
Question : 2	Explain in detail about composite propellers.		
17	Construction	Frank Delp	3
Question : 3	Explain in detail about constant speeding propeller		
21	Constant speeding	Frank Delp	3
Question : 4	Explain in detail about types of propeller damage.		
29	Propeller Maintenance	Frank E Hitchens	5
Question : 5	Explain in detail about reverse pitch propeller.		
23	Reverse Pitch	Frank Delp	4
Question : 6	Explain in detail about synchroniser system of twin engine turboprop aeroplane.		
26	Synchronizing	Frank E Hitchens	4
Question : 7	How to check propeller blade tracking? Explain in detail.		
28	Blade Tracking	Frank E Hitchens	5
Part C			
Question : 1	Explain in detail about basic governor configuration.		

21	Governor	Frank Delp	3
Question : 2	Explain in detail about electrical de-icing system.		
32	Electrical De-icing	Frank Delp	5
Question : 3	Explain in detail about feathering system		
24	Feathering	Frank Delp	4
Question : 4	Explain in detail about system operation of synchrophasing.		
27	Synchrophasing	Frank Delp	4
Question : 5	Explain in detail about static and dynamic balancing of propeller.		
28	Static and dynamic balancing	Frank E Hitchens	5
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.		Somaliy	

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