

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 / 57 / SET 1

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 3	Date of Submission	26/09/2020
Name of Faculty	Mr. R.N. Jha	Date of Examination	28/09/2020
Course	B.Tech (Aeronautical Engineering)	Semester	SEMESTER : 7
Batch	Combined Batches 12, 13, 14	Subject	7 ST - 01 Avionics II (Special Theory Subject) (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	CO 2: Summarize the various aircraft instruments and its application. CO 3: Interpret the construction and working principle of various airborne equipments. CO 4: Illustrate about the performance of basic Inspections procedures in equipments working. CO 5: Identify the components of aircraft auto flight system. CO 6: Describe about the operation of automatic landing system in an aircraft.		
Email I'd	ramnareshjha@soaneemrana.org	Phone No.	769-093-4100
Student Name		Student Reg No.	

Part A

Question : 1	Differentiate between absolute pressure and gauge pressure.		
4	Measurement of pressure	Aircraft Instruments (EHJ Pallett)	4
Question : 2	Explain the principle of operation of thermocouple.		
6	Thermocouple principle	Aircraft Instruments (EHJ Pallett)	4
Question : 3	Explain the working principle of air speed sensor.		

9	Air speed indicator	Aircraft Instruments (EHJ Pallett)	3
Question : 4	Explain the function of metering unit in vertical speed indicator		
12	vertical speed indicator	Aircraft Instruments (EHJ Pallett)	3
Question : 5	Write a short note on space segment of Global positioning system		
15	space segment	Manual of Avionics (Brian Kendal)	2
Question : 6	Name various systems which feeds signals to the Flight director computer		
18	F D S Computer	Aircraft instruments and integrated systems (EHJ Pallett) Chapter No-9	3
Question : 7	Explain the difference between qualitative display and director display.		
21	Display system	Aircraft instruments (EHJ Pallett) Chapter No--3	2
Question : 8	What does caret(<) and asterisk (*) sign indicate in control and display unit of Flight Management System?		
24	C D U	Aircraft Instruments and Integrated Systems (EHJ Pallett) Chapter No:-17	3
Question : 9	Explain the role of Automatic Flight control system.		
25	Role of Automatic Flight control system.	Automatic Flight control system (EHJ Pallett)Chapter No-2	5
Question : 10	Manometric modes belongs to which axis of operation of AFCS?		
27	Outer loop control	Automatic Flight Control Ststem (EHJ PALLETT) Chapter No:-6	5
Part B			
Question : 1	Explain why fuel quantity should be indicated by weight in aircraft.		
5	Measurement of by weight fuel quantity	Aircraft instruments (EHJ Pallett) chapter no-13	4
Question : 2	Eplain the factors affecting rigidity and precession of gyroscope.		
14	Factors affecting rigidity and precession	Aircraft instruments (EHJ Pallett) Chapter no-5	3
Question : 3	Explain the operation of stick pusher type stall warning system.		
17	stick pusher	Aircraft instruments and integrated systms (EHJ Pallett) Chapter No--2 Page No--73--77	2
Question : 4	Describe the various types alert messages displayed by Engine Indicating and Crew Alerting System (EICAS).		
22	Alert messages	Aircraft instruments and integrated systems (EHJ Pallett) Chapter No:- 16	4
Question : 5	Explain display presentation of EHSI in map mode.		
23	Map mode	Aircraft Instruments and Integrated Systems (EHJ Pallett) Chapter No:- 12	4
Question : 6	Explain the operation of Flight management system in climb mode.		
24	Modes of operation	Aircraft Instruments and Integrated Systems (EHJ Pallett) Chapter No:-17	4

Question : 7	Describe the fundamentals of Automatic Flight control system .		
25	Fundamentals of Automatic Flight control system .	Automatic Flight control system (EHJ Pallett)Chapter No-2	5
Part C			
Question : 1	Explain the operation of engine vibration indicating system.		
17	Engine vibration monitoring and indicating system.	Aircraft instruments and integrated systms (EHJ Pallett) Chapter No--15	3
Question : 2	Explain the operation automatic flight contol system in altitude select and hold mode.		
27	Outer loop operation	Automatic Flight Control Sstsem (EHJ PALLETT) Chapter No:-6	5
Question : 3	Explain the operation of auto throttle system in take off mode.		
29	Auto throttle system	Automatic Flight control system (EHJ Pallett) Chapter No:-10 Page No:-286-288	5
Question : 4	Explain the operation of automatic landing system.		
31	Automatic landing system.	Automatic Flight Control System (EHJ Pallett) Chapter No:-10	6
Question : 5	Describe the automatic landing sequence.		
32	Automatic landing sequence.	Automatic Flight Contrl System (EHJ Palett) Chapter No:-10 Page No:-283-285	6
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.		Yes	