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 / 41 / SET 1

Instructions For Students / FacultyMid 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**	07/09/2020
Name of Faculty	Mr. R.N. Jha	**Date of Examination**	09/09/2020
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	2. To give exposure to various aircraft instruments. 3. To impart knowledge on construction and working principle of various airborne equipments. 4. To familiarize with basic inspections procedures equipments working.		
Email I'd	ramnareshjha@soaneemrana.org	**Phone No.**	769-093-4100
Student Name		**Student Reg No.**	

Part A			
Question : 1	Define calibration.		
1	Calibration	Instrumentaion , measurement and analysis (BC Nakra and KK chaudhary) chapter no-1 page no-24	3
Question : 2	Define absolute pressure.		
4	Measurement of pressure	Aircraft Instruments (EHJ Pallett) chapter no-12 page no-298	3

Question : 3	Describe the construction and operation of tank unit capacitor of fuel quantity indicating system		
5	Basic gauge system	Aircraft instruments (EHJ Pallett) chapter no-13 page no-317-318	3
Question : 4	Explain the principle of operation of thermocouple		
6	Thermocouple principle	Aircraft instruments (EHJ Pallett) chapter no -11 page no-279-280	3
Question : 5	What is the purpose of bellow fitted in magnetic compass?		
7	Liquid expansion compensation	Aircraft instruments (EH Pallett) Chapter No-6 Page No-169	3
Question : 6	Explain the function of metering unit in vertical speed indicator.		
12	Metering unit	Aircraft instruments By EHJ Pallett Chapter no-4 page no-102-103	3
Question : 7	State the difference between apparent drift and real drift.		
14	Limitation of free gyroscope	Aircraft instruments (EHJ Pallett) Chapter no--5 Page no-122-124	3
Question : 8	What do you understand by space segment of Global positioning system?		
15	Space segment	Manual of Avionics (Brian Kendal) Chapter No-8.3 Page No-244-250	3
Question : 9	Explain operation of off flag in servo operated temperature indcatng system.		
16	Servo operated indicator	Aircraft instruments (EHJ Pallett) Chapter no--11 Page no-293	3
Question : 10	Name various systems which feeds signals to the flight director computer		
18	Flight director computer	Aircraft instruments and integrated systems (EHJ Pallett) Chapter No-9 Page No-209	3
Part B			
Question : 1	Describe the construction force balance transducer.		
2	Force balance type seismic device	Instrumentaion , measurem(ent and analysis (BC Nakra and KK chaudhary) chapter no-7 page no-207	3
Question : 2	Explain why fuel quantity should be indicated by weight in aircraft.		
5	Measurement of fuel quantity by weight	Aircraft instruments (EHJ Pallett) chapter no-13 page no-321-322	3
Question : 3	Eplain the factors affecting rigidity of gyroscope.		
14	Rigidity	Aircraft instruments (EHJ Pallett) Chapter no--5 Page no-118	3
Question : 4	Explain the construction of flux detector in magnetic heading and refference system		
15	Flux detector element.	Airrcaft Instruments (EHJ Pallett) Chapter No-7 Page No185-186	2
Question : 5	Explain the operation of engine vibration indicating system.		
17	Engine vibration monitoring system17	Aircraft instruments and integrated systms (EHJ Pallett) Chapter No--15 Page No--375--376	2
Question : 6	Describe the function horizontal situation indicator.		
18	Horizontal situation indicator.	Aircraft instruments and integrated systems (EHJ Pallett) Chapter No-9 Page No-216--219	2
Question : 7	What are uses of accelerometer signal in inertial navigation system?		
19	Fundamental principle of system(INS)	Aircraft instruments and integrated system (EHJ Pallett) Chapter No-10 Page No-256--260	3
Part C			
Question : 1	Explain the working of RPM indicating system using proximity probe.		

3	Tacho probe and indicating system	Aircraft instruments (EHJ pallett) Chapter no - 10 page no - 250-252	2
Question : 2	Explain the operation of ring laser gyro.		
9	Ring Laser Gyro	Aircraft instruments integrated systems (EHJ Pallett) chater no-10 page no-270-273	2
Question : 3	Explain the oeration of capacitor type basic fuel quantity indicating system		
13	Basic Guage system	Aircraft instruments (EHJ Pallett) chapter no-13 Page No-317-320	2
Question : 4	Explain the warning system of EICAS.		
16	Alert Messages	Explain the warning system of EICAS.	4
Question : 5	Explain the operation of fly by wire system with g demand control law.		
20	Pitch contro Law	Automatic Flight Control system (EHJ Pallett) Chapter No-11 Page No-298--299	3
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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