Question Paper For Internal Assessment Examination (Theory) - Credit 3 / 106 / SET 1

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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(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	Mid Term 2	**Date of Submission**	20/06/2021
Name of Faculty	Mr. Sathya Narayanan N	**Date of Examination**	30/06/2021
Course	B.Tech (Aeronautical Engineering)	**Semester**	SEMESTER : 6
Batch	Fifteenth (15)	**Subject**	6 AN4 - 05 Avionics-I (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	3. To impart knowledge on construction and working principle of various Aerials and Propagation and Electronic Navigation of an aircraft. 4. To familiarize with basic inspections procedures Communication Equipment's and its working.		
Email I'd	sathyanarayana@soaneemrana.org	**Phone No.**	978-975-4628
Student Name		**Student Reg No.**	

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 3
Question : 1	What are the different types of clutter signal?

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15	Clutter	Geroge Kannedy : Electronic Communication System, McGraw Hill	
Question : 2	Define polarization and directivity.		
13	Antenna Theory	Geroge Kannedy : Electronic Communication System, McGraw Hill	
Question : 3	What are the alerts provided in TCAS?		
20	TCAS	Myron Kayton and Walter R fried, Avionics Navigation Systems, John Wiley and Sons	
Question : 4	Define dead reckoning navigation system.		
20	DR navigation system	Myron Kayton and Walter R fried, Avionics Navigation Systems, John Wiley and Sons	
Question : 5	State Doppler effect.		
20	Doppler Navigation	Myron Kayton and Walter R fried, Avionics Navigation Systems, John Wiley and Sons	
2. CHOOSE COURSE OUTCOME (CO) NUMBER ACCORDING TO THE TYPE OF MIDTERM, AS PER INSTRUCTIONS ABOVE.			CO 4
Question : 6	Define SMO		
21	VHF Communication	AIRCRAFT RADIO SYSTEM BY J POWEL	
Question : 7	What is SELCAL?		
26	Audio Integration System	AIRCRAFT RADIO SYSTEM BY J POWEL	
Question : 8	What is squelch control?		
21	VHF Communication	AIRCRAFT RADIO SYSTEM BY J POWEL	

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Question : 9	Define AGC.		
21	VHF Communication	AIRCRAFT RADIO SYSTEM BY J POWEL	
Question : 10	Calculate the maximum range for aircraft if the receiver and transmitter at 10000 and 1000 ft respectively from the sea level.		
21	VHF Communication	AIRCRAFT RADIO SYSTEM BY J POWEL	

PART B

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 3
Question : 1	Explain in detail about the voltage and current distribution along antenna of various length.		
15	Antenna Theory	Geroge Kannedy : Electronic Communication System, McGraw Hill	
Question : 2	Explain in detail about Alerts and collision Avoidance System(TCAS)		
20	Alerts and collision Avoidance System	Myron Kayton and Walter R fried, Avionics Navigation Systems, John Wiley and Sons	
Question : 3	Briefly explain about the transmitter characteristics of TACAN with a neat diagram.		
18	TACAN	Myron Kayton and Walter R fried, Avionics Navigation Systems, John Wiley and Sons	
4. CHOOSE COURSE OUTCOME (CO) NUMBER ACCORDING TO THE TYPE OF MIDTERM, AS PER INSTRUCTIONS ABOVE.			CO 4
Question : 4	Write about the Characteristics of VHF communication equipment		
21	VHF Communication	AIRCRAFT RADIO SYSTEM BY J POWEL	

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Question : 5	Explain about the working principle of SELCAL		
26	Audio Integration System	AIRCRAFT RADIO SYSTEM BY J POWEL	
Question : 6	Explain about the cabin interphone system in detail.		
26	Audio Integration System	AIRCRAFT RADIO SYSTEM BY J POWEL	
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 3
Question : 1	Explain in detail about LORAN navigator system with neat sketches.		
17	Hyperbolic Navigation	Myron Kayton and Walter R fried, Avionics Navigation Systems, John Wiley and Sons	
Question : 2	Explain in detail about the components of ILS with neat sketches.		
25	Instrument Navigation System	Myron Kayton and Walter R fried, Avionics Navigation Systems, John Wiley and Sons	
Question : 3	Explain in detail about the principle and the types of Doppler navigation system.		
20	Doppler Navigation	AIRCRAFT RADIO SYSTEM BY J POWEL	
6. CHOOSE COURSE OUTCOME (CO) NUMBER ACCORDING TO THE TYPE OF MIDTERM, AS PER INSTRUCTIONS ABOVE.			CO 4
Question : 4	Explain in detail about the VHF transreceiver system with a neat block diagram		

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21	VHF Communication	AIRCRAFT RADIO SYSTEM BY J POWEL	
Question : 5	Explain in detail about the HF transreceiver system with a neat block diagram		
24	HF Communication	AIRCRAFT RADIO SYSTEM BY J POWEL	
Question : 6	Explain in detail about the theory of operation of AIS.		
26	Audio Integration System	AIRCRAFT RADIO SYSTEM BY J POWEL	
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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