U.S.N.										

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

January / February 2025 Semester End Main Examinations

Programme: B.E. **Semester: VII**

Branch: Institutional Elective **Duration: 3 hrs.**

Course Code: 22AS7OEANS **Max Marks: 100**

Course: Avionics and Navigation System

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

			UNIT - I	CO	PO	Marks
1	a)		Explain the need for avionics in civil and military aircraft.	CO1	PO1	**6**
	b)		Bestow the steps involved in design of avionics system.	CO1	PO2	**6**
	c)		Explain the functional requirements of an Integrated Avionics and weapon system (AWS).	CO1	PO2	**8**
			OR			
2	a)		Describe the architecture of digital computer and explain each of its components.	CO1	PO1	**10**
	b)		Classify the memories used in digital computer. Explain each type.	CO1	PO1	**10**
			UNIT - II			
3	a)		Describe the architecture of the Avionics system with a neat schematic diagram.	CO1	PO1	**10**
	b)		Explain different types of data bus systems used in the Avionics systems.	CO2	PO1	**10**
			OR			
4	a)		With the help of neat schematic, explain the architecture, word formats and transfer formats of MIL-STD 1553B data bus.	CO3	PO3	**15**
	b)		Write a short note of ARINC 629 data bus.	CO1	PO3	**5**
			UNIT - III			
5	a)		Illustrate the principle of CRT and LED with a neat schematic diagram.	CO1	PO1	**12**
	b)		Write a short note on following i) HOTAS ii) Touch screen	CO1	PO1	**8**

			OR			
	6	a)	Explain the working principle of LCD with a suitable figure.	*CO1*	*PO1*	**8**
		b)	With a neat schematic, Illustrate the principle of HUD.	*CO1*	*PO1*	**8**
		c)	Mention the characteristics required for the Speech to use in DVI system.	*CO1*	*PO1*	**4**
			UNIT - IV			
	7	a)	Illustrate the principle of VOR with a neat schematic diagram.	*CO2*	*PO3*	**7**
		b)	Explain the principle of INS with a neat block diagram.	*CO3*	*PO1*	**7**
		c)	Explain the principle of GPS.	*CO3*	*PO1*	**6**
			OR			
	8	a)	Illustrate the principle of ILS with a neat schematic diagram.	*CO2*	*PO3*	**8**
		b)	Explain the different types of sensors used to determine the position in INS.	*CO1*	*PO1*	**6**
		c)	Describe the different segments of GPS and explain each of it in detail.	*CO2*	*PO1*	**6**
			UNIT - V			
	9	a)	Explain the operation of air data system with a neat diagram. Mention the quantities that are measured using air data system.	*CO2*	*PO1*	**10**
		b)	Illustrate the operation of Mach warning system and altitude warning system.	*CO3*	*PO3*	**10**
			OR			
	10		Explain the following: i) Altimeter ii) Air Speed Indicator iii) Vertical speed iv) 'T' Configuration	*CO3*	*PO1*	**20**

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