U.S.N.										

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

Autonomous Institute Affiliated to VTU

January 2024 Semester End Main Examinations

Programme: B.E. **Semester: VII**
Branch: Institutional Elective **Duration: 3 hrs.**
Course Code: 21AE7OEANS **Max Marks: 100**
Course: Avionics and Navigation Systems

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)	Elucidate the avionics subsystem with necessary block diagram	*CO 1*	*PO 1*	**10**
	b)	Explain the working principle of 8085 microprocessor with the help of suitable sketches.	*CO 1*	*PO 2*	**10**
		UNIT - II			
2	a)	Elaborate the block diagram of MIL-1553 B of avionics systems.	*CO 2*	*PO 2*	**8**
	b)	Summarize the important features of ARNIC-429 bus.	*CO 2*	*PO 2*	**6**
	c)	Write short notes on (i) RAM (ii) ROM and (iii) EEPROM	*CO 2*	*PO 3*	**6**
		UNIT - III			
3	a)	With necessary block diagram elaborate the key points on DVI.	*CO 2*	*PO 2*	**6**
	b)	Overview the different types displays used avionics systems.	*CO 2*	*PO 2*	**8**
	c)	Generalize the features of MFDS.	*CO 1*	*PO 2*	**6**
		OR			
4	a)	Explain in detail about Plasma Panel Display (PPD) and Electro Luminescent Display (ELD) with suitable sketches	*CO 2*	*PO 2*	**8**
	b)	Sketch out necessary key points on HOTAS.	*CO 2*	*PO 2*	**4**
	c)	Elaborate with required diagrams Head Up Display (HUD).	*CO 2*	*PO 2*	**8**
		UNIT - IV			
5	a)	Describe the working principle of Inertial Navigation System (INS) with the help of suitable diagram.	*CO 2*	*PO 3*	**8**
	b)	Outline the important features of the listed below. (i) ADF (ii) LORAN (iii) DME (iv) VOR	*CO 2*	*PO 2*	**8**

		c)	Discriminate the working principle of MLS from ILS with proper neat sketch.	*CO 2*	*PO 2*	**4**
			OR			
	6	a)	Write short notes on ADF.	*CO 2*	*PO 2*	**8**
		b)	Explain about the principle of hyperbolic navigation system by giving its types	*CO 2*	*PO 2*	**8**
		c)	Explain the principles and mechanisms of satellite-based positioning system to provide accurate and reliable location information for aircraft worldwide.	*CO 2*	*PO 2*	**4**
			UNIT - V			
	7	a)	Write short notes on (i) altitude (ii) airspeed (iii) vertical speed (iv) Mach number	*CO 2*	*PO 2*	**8**
		b)	Explain the working principle of pitot static tube along with neat sketches. Also mention the air data quantities obtained from it.	*CO 3*	*PO 2*	**6**
		c)	Explain the working principle of the Mach warring and Altitude Warning air data systems.	*CO 3*	*PO 3*	**6**

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