Reg. No.

MANIPAL INSTITUTE OF TECHNOLOGY MANIPAL (A constituent unit of MAHE, Manipal)

I SEMESTER M.TECH. (AVIONICS)

END SEMESTER EXAMINATIONS, MARCH 2021

SUBJECT: AVIONICS SYSTEM ENGINEERING [AAE 5151]

REVISED CREDIT SYSTEM (01/03/2021)

Time: 3 Hours MAX. MARKS: 50		
Instructions to Candidates:		
	✤ Answer ALL the questions.	
	 Missing data may be suitable assumed. 	
1A.	Define the terms system and system engineering. Also sketch the system engineering process.	[03]
1B.	Define the term stakeholder.	[01]
1C.	Discus the importance of the following:	[06]
	(i) SEMP	
	(ii) TDSS	
	(iii) EIA 632	
2A.	Describe the technical evaluation process with neat diagram. Justify with one example.	[03]
2B.	Explain the system design process with neat diagram. Highlight their interrelationships to find best solution.	[04]
2C.	Explain system engineering and its scope in aerospace.	[03]
3A.	ADS-B and ATC play important roles to avoid collision in air. How? Justify it.	[02]
3B.	Identify the system given in figure 3.1 . Explain the system designer's approach to design this architecture.	[04]
3C.	Implement the product realization process in space avionics design and development.	[04]
4A.	Write the verification and validation test requirements to integrate a Helmet Mounted Display system in a Military aircraft.	[03]
4B.	Derive the design and interface requirements to design redundant data bus system in aircraft with display system's LRUs.	[03]

- 4C. How does display systems in modern aircraft Airbus or Boeing work? [04] Explain various display systems available with the information displayed with a neat diagram.
- 5A. Identify the cockpit deck of an aircraft and create a V-model to design [04] it as given in **figure 5.1**. Briefly explain the avionics generation architecture adopted in it.
- 5B. What do you mean by cross cutting technical management? List its [02] components.
- 5C. Write a good requirements checklist to design an interface architecture [04] of various navigation system in an aircraft as shown in **figure 5.2**.



Q 3B: Figure 3.1



Q 5A: Figure 5.1



Q 5C: Figure 5.2