GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–IV (NEW) EXAMINATION – SUMMER 2024

Subject Code:3140103   **Date:18-07-2024**

Subject Name: Aircraft Systems, Instruments and Maintenance

Time:10:30 AM TO 01:00 PM   **Total Marks:70**

Instructions:
1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Simple and non-programmable scientific calculators are allowed.**

Q.1	**(a)**	What are the basic difference between hydraulic systems and pneumatic systems?	**03**
	(b)	Draw vertical speed indicator with neat nomenclature.	**04**
	(c)	Explain how pitot instrument works? Which are the different pitot instruments? Explain working of altimeter with neat sketch.	**07**
Q.2	**(a)**	What is aircraft rigging?	**03**
	(b)	What is De-icing and Anti-icing?	**04**
	(c)	What is pressurization? Explain cabin pressurization system.	**07**
		OR	
	(c)	Explain the thrust augmentation method using afterburner in detail.	**07**
Q.3	**(a)**	What happens if pitot is fixed behind propeller disk? Explain with reference to air speed indicator reading	**03**
	(b)	Differentiate between breakdown and schedule maintenance.	**04**
	(c)	With block diagram explain hydraulic control system of elevator.	**07**
		OR	
Q.3	**(a)**	What is function of oxygen system?	**03**
	(b)	Describe push-pull control rod system.	**04**
	(c)	Explain dry sump lubrication system.	**07**
Q.4	**(a)**	Classify hydraulic actuators with neat sketch.	**03**
	(b)	Elaborate reservoir, filters, shut-off valves and selector valve for aircraft system.	**04**
	(c)	What is the function of servo arms? Draw and explain different types of servo arms.	**07**
		OR	
Q.4	**(a)**	What is thrust reversal? How it is done during flight?	**03**
	(b)	Describe types of maintenance schedule.	**04**
	(c)	Illustrate seat ejection method.	**07**
Q.5	**(a)**	What is thrust vectoring? When it is applied in flight?	**03**
	(b)	Why mach meter is used in aircraft?	**04**
	(c)	Draw and explain fuel system of a conventional jet transport aircrafts?	**07**
		OR	
Q.5	**(a)**	Discuss the working principle of gyro instruments.	**03**
	(b)	Write a short note on turbofan engine.	**04**
	(c)	Explain four stroke reciprocating engine with neat sketches.	**07**

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