

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-IV (NEW) EXAMINATION – SUMMER 2021****Subject Code:2140103****Date:11/09/2021****Subject Name:Aircraft Systems, Instruments and Maintenance****Time:02:30 PM TO 05:00 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.

		MARKS
<b>Q.1</b>	(a) Draw a schematic diagram of mechanical tachometer with nomenclature.	<b>03</b>
	(b) What is altimeter?	<b>04</b>
	(c) Explain turn and slip indicator instrument.	<b>07</b>
<b>Q.2</b>	(a) Explain different types of aircraft fuel tank.	<b>03</b>
	(b) How does aileron control operate?	<b>04</b>
	(c) Explain pitot static system with neat sketch.	<b>07</b>
<b>OR</b>		
	(c) Explain directional gyro indicator with neat sketch.	<b>07</b>
<b>Q.3</b>	(a) Explain blockage error in air speed indicator.	<b>03</b>
	(b) What are advantages of gas turbine engine over reciprocating engine?	<b>04</b>
	(c) Explain air cycle machine in a cooling system of aircraft.	<b>07</b>
<b>OR</b>		
<b>Q.3</b>	(a) What is the main difference between magnetic and gyro compass?	<b>03</b>
	(b) Differentiate between gyroscopic rigidity in space and gyroscopic precession.	<b>04</b>
	(c) Explain dry sump lubrication system.	<b>07</b>
<b>Q.4</b>	(a) What is thrust vectoring?	<b>03</b>
	(b) What is thrust reversal?	<b>04</b>
	(c) What is purpose of thrust augmentation method? Explain Afterburner method.	<b>07</b>
<b>OR</b>		
<b>Q.4</b>	(a) Explain aircraft cable control system component with neat sketch.	<b>03</b>
	(b) Differentiate between two stroke and four stroke reciprocating engine.	<b>04</b>
	(c) Explain variable pitch propeller control.	<b>07</b>
<b>Q.5</b>	(a) What is purpose of lubrication system?	<b>03</b>
	(b) Explain gravity feed fuel system.	<b>04</b>
	(c) With neat sketch explain how a turbo prop engine works.	<b>07</b>
<b>OR</b>		
<b>Q.5</b>	(a) Explain engine pressure ratio for jet engines.	<b>03</b>
	(b) Explain pressure feed fuel system.	<b>04</b>
	(c) Differentiate between single and dual control system with neat sketch.	<b>07</b>

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