

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– IV (New) EXAMINATION – WINTER 2019

Subject Code: 2140103

Date: 14/12/2019

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. Use drawing instruments to make figures.

		MARKS
Q.1	(a) Only draw dial of Air Speed Indicator showing all speed ranges.	03
	(b) Explain blockage errors of mach meter with neat sketch.	04
	(c) With neat sketch explain function of Attitude Indicator.	07
Q.2	(a) Differentiate between Gyroscopic precession and Rigidity in space.	03
	(b) Explain function of Directional Gyro Indicator with neat sketch.	04
	(c) Explain function of mechanical tachometer with neat sketch.	07
OR		
	(c) Explain importance of CHT gauge and EGT gauge with respect to piston prop engine and turboprop engine.	07
Q.3	(a) Shortly explain function of trim position indicator.	03
	(b) With neat sketch explain dual control column mechanism.	04
	(c) Differentiate between air brakes and spoiler controls.	07
OR		
Q.3	(a) With neat sketch explain function of Bell Crank, Control Horns, and Servo Arms.	03
	(b) Explain horizontally opposed and radial engines with neat sketches.	04
	(c) Discuss different types of actuators with neat sketches.	07
Q.4	(a) With neat sketch explain how turnbuckle is locked in cable control system?	03
	(b) Differentiate between push rods and cable control mechanism of primary control surfaces.	04
	(c) With neat sketch explain function of turbo shaft engine.	07
OR		
Q.4	(a) Shortly explain function of dowel.	03
	(b) With neat sketch explain any two types of thrust augmentation system.	04
	(c) With neat sketch explain hydraulic system of a conventional under carriage retraction system.	07
Q.5	(a) Shortly explain thrust vectoring system with neat sketch.	03
	(b) Only draw fuel supply system of a low wing aircraft where engine location is there elevated than fuel tanks.	04
	(c) With neat sketch explain cabin cooling system of aircraft.	07

OR

- Q.5** (a) Only draw a diagram of bleed air supply system using for cabin pressurization. **03**
- (b) Draw and explain internal design of a gas turbine engine oil tank. **04**
- (c) What is Manifold pressure? Mention its location. What is the need of Manifold pressure gauge? **07**
