Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–IV(New) EXAMINATION – SUMMER 2016

Subject Code:2140103 Date:08/06/2016

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.**

			Marks
Q-1		Short Questions	14
	1	Enlist four pressure instruments.	
	2	Define breakdown maintenance.	
	3	Enlist any four gyro instruments.	
	4	Which type of gyro is used for attitude indicator?	
	5	What is the function of altimeter?	
	6	Which movement is controlled by elevator?	
	7	Define Mach number.	
	8	For which purpose turn buckle is used?	
	9	Which two controls are attached with rudder pedals in fix wing aircraft?	
	10	What is the function of magneto in piston prop aircraft?	
	11	Which control surfaces should be checked to be operated in opposite directions after corrective maintenance?	
	12	Define bleed air.	
	13	Why is it important to measure CHT?	
	14	Define conditioned air.	
Q-2	(a)	Draw a schematic design of air speed indicator.	3
	(b)	Only draw a cable control system to operate any primary control surface. Mention all necessary components with nomenclature.	4
	(c)	Classify type of Maintenances.	7
		OR	
	(c)	Explain with neat sketch how Mach meter works.	7
Q-3	(a)	What are applications of control horns and bell cranks in aircrafts?	3
	(b)	Differentiate between hydraulic and pneumatic systems of aircrafts.	4
	(c)	With neat sketch explain air conditioning system of any pressurize fuselage aircraft.	7
		OR	
	(a)	Explain blockage error in air speed indicator.	3
	(b)	Shortly explain aircraft rigging.	4
	(c)	Enlist explain applications of instruments for operation of gas turbine engines.	7
Q-4	(a)	Only draw vertical speed indicator with neat nomenclature.	3

	(b)	Differentiate between cable and pushrod control mechanism of aircraft.	4
	(c)	With neat sketch explain how vertical speed indicator works?	7
		OR	
	(a)	How will you secure aviation nuts and bolts or any other fasteners against vibrations?	3
	(b)	What is the importance to monitor Engine Pressure Ratio?	4
	(c)	Explain the dual ignition system of multi cylinder piston engines of aircrafts.	7
Q-5	(a)	Why is bleed air valve closed before takeoff roll and approaching for landing?	3
	(b)	With neat sketch explain engine lubrication system.	4
	(c)	Draw and explain deicing and anti-icing system of jet transport aircraft.	7
		OR	
	(a)	Explain engine pressure ratio for jet engines.	3
	(b)	With neat sketch shortly explain fuel supply system of low wing aircraft.	4
	(c)	How does pilot operate hydraulic system to move ailerons?	7

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