

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-IV(New) • EXAMINATION – WINTER 2016

Subject Code:2140103

Date:23/11/2016

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.

Short questions

14

- Q-1
1. Enlist instruments working on both pitot and static pressure.
 2. Define engine pressure ratio.
 3. What is the function of turbine in aviation gas turbine engine?
 4. What is the importance of manifold pressure gauge?
 5. Only enlist engine instruments used in high by pass jet engines.
 6. What are the applications of Artificial Horizon?
 7. Define corrective maintenance.
 8. Why lower baggage area is pressurized in aircrafts flying at high altitudes.
 9. Mention condition of bleed air valve at the time of cruise and climb.
 10. What is auxiliary power unit?
 11. If bird hit takes place on the leading edge of wing. What type of maintenance will you perform on the wing?
 12. Why cabin air heater is started after some phase of climb?
 13. What is the importance of pressure relief valve mounted on fuselage body?
 14. What do you mean by anti-icing system?
- Q-2
- (a) What is the main difference between magnetic and gyro compass? 03
 - (a) Explain how turn coordinator works? 04
 - (b) Explain errors of gyro instruments when gyro RPM decreases below certain levels. 07
- OR
- (b) Explain ignition system of four strokes, four cylinders, horizontally opposed aircraft engine. 07
- Q-3
- (a) Only draw dial of a conventional air speed indicator showing all the stalling speeds, normal operating speed and never exceed speed. 03
 - (b) Differentiate between gyroscopic rigidity in space and gyroscopic precession. 04
 - (c) Draw and explain hydraulic system which controls ailerons. 07
- OR
- (a) If pilot complains about aileron fluttering during normal cruise speed, which corrective maintenance steps will you take? 03
 - (b) Draw and explain fuel system of a conventional jet transport aircrafts. 04
 - (c) Explain phases of flight in brief. 07

- Q-4 (a) Differentiate between breakdown and schedule maintenance. 03
 (b) Which precautions will you take to keep cable control systems fir for flying? 04
 (c) Differentiate between airspeed indicator and mach meter 07
- OR
- (a) Only draw retractable landing gear mechanism. 03
 (b) Explain error in pressure sensitive instruments when aircraft enters into high pressure to low pressure atmosphere. 04
 (c) Shortly explain front main panel and overhead instrument panel. 07
- Q-5 (a) What happens if pitot is fixed behind propeller disk? Explain with reference to air speed indicator reading. 03
 (b) Explain function of auxiliary power unit. 04
 (c) Explain errors of pressure altimeter during climb. 07
- OR
- (a) Explain temperature error in pressure instruments. 03
 (b) Explain how air is supplied to pressurized fuselage for the comfort of passengers and crew members. 04
 (c) Explain how does controls are attached with all primary control surfaces. 07
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