

GUJARAT TECHNOLOGICAL UNIVERSITY**BE – SEMESTER V • EXAMINATION – WINTER - 2012****Subject code: 150105****Date: 22-01-2013****Subject Name: Operation & Maintenance of Aircraft****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.

- Q.1** (a) What is thrust augmentation, requirements and methods of augmentations? **07**
Explain general electric engine J85 after burner and nozzle system with figure.
- (b) Explain lubricating system and requirements. Explain Allison engine company 501-D13 lubricating system, operation and components with figures. **07**
- Q.2** (a) Describe turbine engine starting procedure and sequence of with figure. **07**
(b) Give introduction and basic principles of V.H.F omnidirectional range (VOR). **07**
- OR**
- (b) Explain types of compressors and operation of gas turbine engine. **07**
- Q.3** (a) Describe Hazardous materials and explain “FACTOR” stand for what? **07**
(b) Explain load factors, aircraft loads and aircraft categories with their load limit factors **07**
- OR**
- Q.3** (a) What do you understand by maintenance and overhaul procedures of gas turbine engine? Explain stage wise in brief. **07**
(b) Explain bonded fuselage structure with figure and show advantages over conventional mechanical fasteners and other physical properties. **07**
- Q.4** (a) Explain transport aircraft wing structure with figure showing spars, skin, ribs, trunnions and tanks fitted with types. Explain doublers and their purpose. **07**
(b) Explain welding repairs of exhaust units of aircraft engine and fuel tanks. **07**
- OR**
- Q.4** (a) Explain different types of welding methods and different types of weld joints. **07**
(b) Explain solid state voltage regulator of alternator with circuit diagram. How Zener diode acts in the circuit? **07**
- Q.5** (a) Explain usage, principle and operation of engine rpm indicator (tachometer). Draw schematic diagram of Autosyn synchro system of Tachometer and explain how and where it is installed? **07**
(b) Explain thermocouple temperature indicator as exhaust gas temperature indicator. What is thermocouple's principle? Draw schematic diagram and thermocouple installation. **07**
- OR**
- Q.5** (a) Explain basic principle of V.H.F communication and installation with typical diagram figure. **07**
(b) Explain rectified power supply of alternator with circuit diagram in brief. **07**
