

GUJARAT TECHNOLOGICAL UNIVERSITY**BE SEM-III Examination May 2012****Subject code: 130104****Subject Name: Introduction to Profession****Date: 15/05/2012****Time: 02.30 pm – 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)** Explain ideal gas turbine cycle with the help of suitable T-S and P-V diagrams. Also derive equation for efficiency in terms of pressure ratio. What are the modification required to used conventional gas turbine power plant as an aircraft propulsion system **07**
- (b)** Differentiate between ILS and MLS with neat sketch **07**
- Q.2 (a)** Derive pressure-temperature –density relation for Troposphere and Stratosphere with the help of **07**
- (b)** What are the main components of aircraft wing structure? What are their roles while flying? **07**
- OR**
- (b)** Explain working of turbojet and turbofan engine with schematic diagram **07**
- Q.3 (a)** Classify aircraft parts with neat sketch **07**
- (b)** How NDB and VOR are helpful for air navigation purpose? **07**
- OR**
- Q.3 (a)** Classify three types of aircraft fuselage structure. **07**
- (b)** What is “aircraft traffic management”? How is it obtained around any airport? **07**
- Q.4 (a)** Define the following terms (a) static stability, (b) lateral static stability, (c) dynamic stability, (d) degree of stability, (e) stability margin, (f) controls fixed stability and (g) controls free stability **07**
- (b)** Give a short note on “tail plane configuration” **07**
- OR**
- Q.4 (a)** Explain the working principle of Pitot tube for measurements of air speed with the help of neat sketch **07**
- (b)** Explain airfoil nomenclature with the help of neat sketch. What are the various forces acting on an airfoil **07**
- Q.5 (a)** What are advantages and disadvantages of Secondary Radars over primary Radars? **07**
- (b)** Give a short note on “Distance Measuring Equipments” **07**
- OR**
- Q.5 (a)** What is the main function of landing gear? What types of landing gears are used in aircraft? **07**
- (b)** What are the main components of aircraft fuselage structure? What are their roles while flying? **07**
