

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- VIIth SEMESTER-EXAMINATION – MAY/JUNE- 2012****Subject code: 170101****Date: 24/05/2012****Subject Name: Aircraft Design-I****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) Which primary parameters are required to start aircraft designing? **07**
(b) Classify stages of aircraft design. **07**

- Q.2** (a) How will you calculate estimate weight of aircraft? **07**
(b) How will you select type of landing gear in your aircraft design? **07**

OR

- (b) What is the importance of dihedral angle in main wing? **07**

- Q.3** (a) What are the reasons behind giving twist to main wing? Explain with neat sketch. **07**
(b) How will you choose proper engine for the given design? Explain with necessary graph. **07**

OR

- Q.3** (a) How will you select fuselage length required for passenger aircraft? **07**
(b) For supersonic aircrafts what considerations are to be taken rather than designing subsonic aircraft? Shortly explain. **07**

- Q.4** (a) Explain types of air inlets for subsonic and supersonic aircraft. **07**
(b) Explain the sentence “Propeller driven aircraft are not capable to cruise at higher altitudes”. **07**

OR

- Q.4** (a) Differentiate between tricycle and tail wheel configurations. **07**
(b) What are advantages of lower taper ratios? Explain with neat sketch. **07**

- Q.5** (a) How will you select fuselage width for personal utility aircraft? **07**
(b) Explain types of tail plane configuration with necessary sketches. **07**

OR

- Q.5** (a) Explain with neat sketches explain how will you locate horizontal stabilizer with reference to main wing for taper wing aircraft. **07**
(b) Explain with neat sketches explain how will you locate vertical fin with reference to main delta wing aircraft? **07**
