

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VIII EXAMINATION – SUMMER 2016****Subject Code:180101****Date:07/05/2016****Subject Name:Aircraft Design - II****Time:10:30 AM to 01:30 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Attempt Q-1, Q-2 (A) and Q-3 (A) of first group in Drawing Sheet. Take suitable scale.

Q-1	A	Maximum speed for heavy lift cargo is 0.78 mach. Maximum takeoff weight is 396360 lbs. Wing loading is 120 lbs/ ft ² . Prepare layout of wing for high wing configuration. Take suitable taper ratio and aspect ratio for this wing.	07
	B	Design a layout of fuselage of above mention aircraft such a way that it can carry a payload of 12 feet x 16 feet x 8 feet. Take suitable slenderness ratio.	07
Q-2	A	Design horizontal stabilizer for above mention design such way that it's tip should not enter into aileron vortices.	07
	B	Shortly explain procedure and importance of flat wrap conic lofting method of light aircraft fuselage modeling and construction	07
OR			
	B	How will you manage longeron path in fuselage airframe modeling?	07
Q-3	A	With neat sketch in drawing sheet only draw conic lofting for fuselage designing. Take suitable scale.	07
	B	How will you model an aircraft such a way that it can minimize infrared or thermal signature as much possible.	07
OR			
	A	How will you prepare intermediate rib shapes in taper wing?	07
	B	With neat sketch explain geometry of a supersonic jet fighter cockpit.	07
Q-4	A	Shortly explain landing gear loads on the aircrafts landing on the deck of a war ships.	07
	B	Explain importance of supersonic area rule in supersonic or high subsonic aircrafts.	07
OR			
	A	Explain techniques to reduce radar delectability of deep penetration strike aircrafts.	07
	B	How can you improve producibility of light aircraft wing structures?	07
Q-5	A	Discuss different engine locations in single and multi engine	07

- piston prop aircrafts.
- B Explain importance of tail dragger under carriage assembly in light sports aerobatic aircrafts. 07
- OR
- A Shortly explain how you will locate points where you can install guns, missiles and bombs. 07
- B With neat sketch explain considerations to design hull of sea planes. 07
