

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-III (New) EXAMINATION – WINTER 2015

Subject Code:2130106

Date:21/12/2015

Subject Name: Aircraft Science and Manufacturing Processes

Time: 2:30pm to 5:00pm

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

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- Q-1
1. Enlist primary control surfaces of aircrafts.
 2. Enlist secondary control surfaces of aircraft.
 3. Enlist axis of aircrafts.
 4. What are main forces acting upon an aircraft?
 5. Classify three types of fuselage structure.
 6. Define semi monocogue structure.
 7. What do you mean by tail dragger wheel configuration?
 8. Define aircraft stations.
 9. Define T tail configuration.
 10. Which component in wing bears bending load?
 11. Define truss type structure.
 12. What is the function of elevator?
 13. What is main components sheet metal wing structure?
 14. Define monocogue structure.
- Q-2
- (a) Only draw a layout of any one type of horizontal stabilizer with nomenclature. 03
 - (b) Differentiate between Centre of Pressure and Aerodynamic Centre. 04
 - (c) Draw and explain zigzag rivet geometry with neat sketch. 07
- OR
- (c) With neat sketch explain three axis and four forces acting upon an aircraft. 07
- Q-3
- (a) Only draw tricycle and tail dragger wheel configuration with nomenclature. 03
 - (b) With neat sketch explain how lift is generated by wings of aircraft. 04
 - (c) What types of rivets are used to fabricate aircraft? Draw and explain with applications. 07
- OR
- (a) Only draw a side view of any type of fuselage. And mention important stations. 03
 - (b) Shortly explain aluminum sheet cutting techniques. 04
 - (c) Shortly explain riveting process with neat sketch. 07
- Q-4
- (a) Explain importance of joggle. How does it fabricated? 03
 - (b) Explain importance of beading with neat sketch. 04
 - (c) Draw and explain sheet metal wing construction of very light aircraft. 07
- OR
- (a) How will you form a roll of a sheet metal? 03

- (b) What type of woods and adhesives are used to fabricate wooden gliders? 04
 - (c) Draw and explain how a truss type wing rib is constructed using wooden sticks. 07
 - Q-5 (a) Only draw different types of aluminum gussets. 03
 - (b) Shortly explain how beading process is conducted for sheet metal works. 04
 - (c) Very shortly explain fabric covering process over wooden glider. 07
- OR
- (a) Only draw sheet metal aft wing rib. 03
 - (b) Only draw different types of sheet metal riveted joints. 04
 - (c) With neat sketch explain applications of elevator, rudder and ailerons. 07
