

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-III (NEW) EXAMINATION – SUMMER 2019****Subject Code: 2130106****Date: 18/06/2019****Subject Name: Aircraft Science and Manufacturing Processes****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.

MARKS

- | | | |
|------------|--|-----------|
| Q.1 | (a) Draw neat sketch of wing structure with nomenclature. | 03 |
| | (b) Explain texturing procedure on painted surface of aircraft. | 04 |
| | (c) Explain principle of generation of lift for cambered airfoil. | 07 |
| Q.2 | (a) Explain secondary control surface of a jet transport aircraft. | 03 |
| | (b) What are general principle of adhesive bonding? | 04 |
| | (c) Classify different type of undercarriage or landing gear. | 07 |
| | OR | |
| | (c) Draw and explain how a truss type wing rib is constructed using wooden sticks. | 07 |
| Q.3 | (a) Explain primary control surface of a jet transport aircraft. | 03 |
| | (b) Explain hand tools used for sheet metal fabrication. | 04 |
| | (c) Draw and explain any three types of junctions of welded steel tube fuselage construction having gussets. | 07 |
| | OR | |
| Q.3 | (a) Only draw tricycle and tail dragger wheel configuration with nomenclature. | 03 |
| | (b) Draw different types of sheet metal riveted joints. | 04 |
| | (c) What are the precautions need to take by manufacturer before and after the construction of wooden glider airframe? | 07 |
| Q.4 | (a) Draw side view of any type of fuselage. And mention important stations. | 03 |
| | (b) What is welded joint? And how is it different than riveted joint? | 04 |
| | (c) Draw and explain construction of junction of former, skin and longeron or stiffener. | 07 |
| | OR | |
| Q.4 | (a) How will you form roll of sheet metal? | 03 |
| | (b) Explain riveting process shortly. | 04 |
| | (c) Explain with neat sketches how aircraft maneuvers around all the three axis using its control surfaces. | 07 |
| Q.5 | (a) Only draw different types of aluminum gussets. | 03 |
| | (b) Discuss types of steel tubes using for aircraft construction. | 04 |
| | (c) Draw and explain different components of sheet metal semi monocoque fuselage structure. | 07 |
| | OR | |
| Q.5 | (a) Why planking is required on the leading edge of wooden wing? | 03 |
| | (b) Only draw neat sketches of any four types of beading dyes. | 04 |
| | (c) Draw and explain sheet metal wing construction of very light aircraft. | 07 |
