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GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VII EXAMINATION - WINTER 2015

| Subject Code: 170101 | | Code: 170101 Date: 12/12/2 | Date: 12/12/2015 | |
|----------------------|---|--|------------------|--|
| • | | Name: Aircraft Design-I D:30am to 1:00pm Total Marks | : 70 | |
| Instru | | · | | |
| | 2. | Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks. | | |
| Q-1 | A | Shortly define. Thrust specific fuel consumption, Taper wing, Mean Aerodynamic Chord, Tail Moment Arm, wing strake. | 07 | |
| | В | • | 07 | |
| Q-2 A B B | A | Maximum take of weight is 163000 lbs. Wing loading is 115 lbs/ft ² . Design the wing geometry as per given data. Take suitable taper and aspect ratio for jet transport aircraft. | 07 | |
| | - · · · · · · · · · · · · · · · · · · · | 07 | | |
| | В | How will decide plan form shape of wing? | 07 | |
| Q-3 | A | What type of different phases of flight do you consider to determine thrust/weight ratio for dog fighter aircraft? | 07 | |
| | В | | 07 | |
| | | OR | | |
| | A | What type of different phases of flight do you consider to determine Maximum Takeoff Weight/Wing plan form area ratio for dog fighter aircraft? | 07 | |
| | В | With neat sketches explain control system of a conventional helicopter. | 07 | |
| 0-4 | A | Explain method for determination of lift/drag ratio estimation. | 07 | |
| I | В | - | 07 | |
| | A | | 07 | |
| | В | | 07 | |
| | A | With neat sketch explain aerofoil selection criteria. | 07 | |
| | В | <u> •</u> | 07 | |
| | A | Discuss different empennage configurations of all type aircrafts. | 07 | |
| | В | · · · · · · · · · · · · · · · · · · · | 07 | |