

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-IV (NEW) EXAMINATION – WINTER 2018****Subject Code:2140103****Date:10/12/2018****Subject Name:Aircraft Systems, Instruments and Maintenance****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.
4. Use drawing instruments for sketches.

**MARKS**

- Q.1** (a) Only draw a pitot static system of a conventional civil aircraft with nomenclature. **03**
- (b) Explain Flaps position indicator system. **04**
- (c) Explain function of Attitude indicator with neat sketch. Discuss errors of HSI. **07**
- Q.2** (a) Only draw a mechanism of a conventional control column with nomenclature. **03**
- (b) What are the difference between Airbrakes and Spoilers? **04**
- (c) Differentiate between Single and dual control system with neat sketch. **07**
- OR**
- (c) Explain function of Variable Pitch Control Unit equipped with governor. **07**
- Q.3** (a) Only draw different types of bushes used for cable control system and thrust bearing used in engine with nomenclature. **03**
- (b) Draw network of cable and pulleys for operation of primary control system in light aircraft. **04**
- (c) Draw assembly of push rod and explain principle of operation. **07**
- OR**
- Q.3** (a) Only draw knuckle joint with nomenclature. Explain application of Knuckle joint in aircraft control surface rigging. **03**
- (b) Differentiate between cable control system and push-pull rod control system. **04**
- (c) Discuss various types of control horns used for operation of control surfaces. **07**
- Q.4** (a) Only classify aircraft piston engines with respect to location of cylinders, number of cylinders and numbers of strokes. **03**
- (b) Explain types of thrust augmentation systems with neat sketch. **04**
- (c) Explain function of horizontally opposed 4 cylinders, 4 stroke engines. **07**

**OR**

- Q.4** (a) Only classify aircraft jet engines with respect to constructional features and applications. **03**
- (b) Explain types of thrust reversal systems with neat sketch. **04**
- (c) With neat sketch explain function of aviation turbojet engine. **07**
- Q.5** (a) Explain function of hydraulic pump. **03**
- (b) Shortly explain cabin pressurization system. **04**
- (c) With block diagram explain hydraulic control system of elevator. **07**
- OR**
- Q.5** (a) Explain function of bleed air valve. **03**
- (b) Explain applications of engine oil circulating systems. **04**
- (c) With neat sketch explain fuel system of high wing aircraft equipped with two fuel tanks in wings. **07**

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