Seat No.: _____ Enrolment No._____

# GUJARAT TECHNOLOGICAL UNIVERSITY

**BE - SEMESTER–IV (NEW) EXAMINATION – WINTER 2023**

**Subject Code:3140103 Date:17-01-2024**

**Subject Name: Aircraft Systems, Instruments and Maintenance**

**Time: 10:30 AM TO 01:00 PM Total Marks:70**

**Instructions:**

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Simple and non-programmable scientific calculators are allowed.**

| | | | **MARKS** |
|---|---|---|---|
| **Q.1** | **(a)** | Enlist the components of a hydraulic system. | **03** |
| | **(b)** | Explain the application of each component of hydraulic system. pneumatic power system. | **04** |
| | **(c)** | What is a pitot? Explain the types and modes of error occurred in pitot. | **07** |
| **Q.2** | **(a)** | Discuss advantages and limitations of turbojet engine over turbofan engine. | **03** |
| | **(b)** | Explain the role of thrust augmentation method. | **04** |
| | **(c)** | Explain in detail, the aircraft pneumatic system. | **07** |
| | | **OR** | |
| | **(c)** | Explain the landing gear system in detail. | **07** |
| **Q.3** | **(a)** | Write a note on turboprop engine. | **03** |
| | **(b)** | Explain the gyro instruments with their principle. | **04** |
| | **(c)** | Explain air cycle system. | **07** |
| | | **OR** | |
| **Q.3** | **(a)** | Explain aircraft icing-deicing system. | **03** |
| | **(b)** | Discuss various types of control horns used for operation of control surfaces. | **04** |
| | **(c)** | Compare IC engines and Aircraft Gas turbine engines. | **07** |
| **Q.4** | **(a)** | Draw different piston cylinder arrangements in reciprocating engines. | **03** |
| | **(b)** | Draw knuckle joint with nomenclature. Explain application of Knuckle joint in aircraft control surface rigging. | **04** |
| | **(c)** | With block diagram explain hydraulic control system of elevator. | **07** |
| | | **OR** | |
| **Q.4** | **(a)** | Explain turn and slip indicator with neat sketch. | **03** |
| | **(b)** | With neat sketch explain function of Attitude Indicator. | **04** |
| | **(c)** | With a neat sketch explain altimeter and explain its working. | **07** |
| **Q.5** | **(a)** | Explain function of bleed air valve. | **03** |
| | **(b)** | Explain fuel flow indicator. | **04** |
| | **(c)** | What is Mach meter? Explain with neat sketch how does it work? | **07** |
| | | **OR** | |
| **Q.5** | **(a)** | What is walk around inspection? | **03** |
| | **(b)** | Explain radar paddle operation. | **04** |
| | **(c)** | Explain the types of aircraft maintenance schedules. | **07** |

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