Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_\_



**End Semester Examination – Nov / Dec – 2019**

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| **Code :** | **17AE2006** | **Duration :** | **3hrs** |
| **Sub. Name :** | **AIRCRAFT INSTRUMENTATION** | **Max. Marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Mention the functional elements of a measurement system. Also explain with a help of a bourdon tube. | CO1 | 11 |
| b. | Explain the three torques that are required to move the indication pointer over the scale. | CO1 | 9 |
| **(OR)** | | | | |
| 2. | a. | Explain the different temperature compensation techniques used in aircraft indicating systems. | CO2 | 12 |
| b. | |  | | --- | | List the operating mechanisms of an instrument. | | CO1 | 8 |
|  |  |  |  |  |
| 3. | a. | List all the pitot static instruments. Explain the working of anyone instrument with a neat sketch. | CO3 | 15 |
| b. | Explain the pitot static system with a neat sketch. | CO3 | 5 |
| **(OR)** | | | | |
| 4. | a. | Explain the vacuum driven system with a neat sketch. | CO3 | 6 |
| b. | Defend how the following instruments are useful in an aircraft.  i) Fuel quantity indicator ii) Mixture control  iii) Ammeter iv) Elevator trim tab  v) Cabin heat control vi) Marker beacon  vii) Master switch | CO3 | 14 |
|  |  |  |  |  |
| 5. |  | Explain the following:  i) Direct Reading Pressure Gauge  ii) D.C Synchronous pressure measurement system  iii) D.C Ratio meter pressure measurement system | CO4 | 6  7  7 |
| **(OR)** | | | | |
| 6. | a. | Discuss on the working of transducers that work on photon activity. | CO5 | 10 |
| b. | Identify the transducers used for measuring temperature. Explain. | CO4 | 10 |
|  |  |  |  |  |
| 7. | a. | Sketch the following systems and explain their working principles.  i) Simple acelerometer set up  ii) Accelerometer based on Newton’s law  iii) Vibrating string accelerometer  iv) Accelerometers on conventional airplanes | CO5 | 5  5  5  5 |
| **(OR)** | | | | |
| 8. |  | Describe the working principles of different data transmission systems of the DC and AC type. | CO6 | 20 |
|  | | **Compulsory**: |  |  |
| 9. | a. | |  | | --- | | Comment on the power indicators for turbojet engines. | | CO6 | 10 |
| b. | |  | | --- | | Describe in detail the power indicators for turboprop engines. | | CO6 | 10 |