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



**End Semester Examination – Nov/Dec– 2017**

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|  |  |  |  |
| **Code :** | **14AE2010** | **Duration :** | **3hrs** |
| **Sub. Name :** | **AIRCRAFT INSTRUMENTATION** | **Max. marks :** | **100** |

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **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. | CO1 | 12 |
| b. | List the operating mechanisms of an instrument. | CO1 | 8 |
|  |  |  |  |  |
| 3. | a. | List all the pitot static instruments. Explain any one working with a neat sketch. | CO2 | 15 |
|  | b. | Explain the pitot static system with a neat sketch. | CO2 | 5 |
| (OR) | | | | |
| 4. | a. | Explain the vacuum driven system with a neat sketch. | CO2 | 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 | CO2 | 14 |
|  |  |  |  |  |
| 5. |  | Explain the following.   1. Direct Reading Pressure Gauge. 2. D.C Synchronous pressure measurement system. 3. D.C Ratio meter pressure measurement system. | CO2 | 6  7  7 |
| (OR) | | | | |
| 6. | a. | Discuss on the working of transducers that work on photon activity. | CO2 | 10 |
|  | b. | Identify the transducers used for measuring temperature. Explain. | CO2 | 10 |
|  |  |  |  |  |
| 7. |  | Sketch the following systems and explain their working principles.   1. Simple accelerometer set up. 2. Accelerometer based on Newton’s law. 3. Vibrating string accelerometer. 4. Accelerometers on conventional airplanes. | CO2 | 5  5  5  5 |
| (OR) | | | | |
| 8. |  | |  | | --- | | Describe the working principles of different data transmission systems of the DC and AC type. | | CO2 | 20 |
|  | |  |  |  |
|  | | **Compulsory**: |  |  |
| 9. | a. | |  | | --- | | Comment in detail on the power indicators for turbojet engines. | | CO2 | 10 |
|  | b. | |  | | --- | | Comment in detail on the power indicators for turboprop engines. | | CO2 | 10 |

ALL THE BEST