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



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

**End Semester Examination – April/May– 2017**

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| **Code :** | **14AE2010** | **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. | What are the principle elements of an instrument system? Explain. | CO1 | 10 |
| b. | Explain the classification of measurement and the functional elements of a measuring system. | CO1 | 10 |
| (OR) | | | | |
| 2. | a. | Give a detailed note on lever and rod mechanisms. | CO1 | 10 |
| b. | Explain the working of a bourdon tube with a neat sketch and identify the functional blocks of the bourdon tube. | CO1 | 10 |
| 3. | a. | Explain with a neat sketch, the part played by the pitot and static ports in providing the required pressure for the aircraft instruments. | CO2 | 10 |
|  | b. | With neat sketches, explain the working principles of instruments that depends on pitot and static lines. | CO2 | 10 |
| (OR) | | | | |
| 4. | a. | Which is the basic component in aircraft instruments that exhibits rigidity and precession and explain how? | CO2 | 5 |
|  | b. | Give a short note on vacuum driven system. | CO2 | 5 |
|  | c. | What are the cockpit instruments using rigidity and precession? Explain the working principles. | CO2 | 10 |
| 5. | a. | How is pressure measured in aircrafts? Explain the various pressure measuring instruments. | CO2 | 10 |
|  | b. | What is a thermocouple? How does it work? Draw neat sketches of different types of thermocouples and explain the working in detail. | CO2 | 10 |
| (OR) | | | | |
| 6. |  | Draw and explain the following:   1. Simple acelerometer set up. 2. Accelerometer based on Newton’s law. 3. Vibrating string accelerometer. 4. Accelerometers on conventional airplanes. | CO2  CO2  CO2  CO2 | 5  5  5  5 |
| 7. | a. | Write a detailed note on Float type fuel quantity indicating system and the basic gauge system. | CO2 | 10 |
|  | b. | Explain the transmitters of independent and integrated fuel flowmeters. | CO2 | 10 |
| (OR) | | | | |
| 8. |  | With neat sketches explain the diferrent data transmission systems of the DC type. | CO2 | 20 |
|  | | **Compulsory**: |  |  |
| 9. |  | Comment in detail on the power indicators for turbojet and turboprop engines. | CO2 | 20 |