****

**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

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

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

**End Semester Examination – Nov/Dec - 2016**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | **Semester :** | **2016-17 ODD** |
| **Code :** | **12AE211** | **Duration :** | **3 hrs** |
| **Sub. Name :** | **Aircraft Instrumentation & Avionics** | **Max. marks :** | **100** |

|  |  |  |  |
| --- | --- | --- | --- |
| **Q. No.** | **Questions** | | **Marks** |
| **PART-A(10X1=10 MARKS)** | | | |
| 1. | Define a measuring element. | | (1) |
| 2. | P43 & P53 spectrum produced in HUD display technology gives \_\_\_\_\_\_\_\_\_. | | (1) |
| 3. | What is impact pressure with reference to air data measurement system? | | (1) |
| 4. | What is *gimbal system of a free gyroscope?* | | (1) |
| 5. | How are primary flight instruments classified based on their working? | | (1) |
| 6. | Synchronous data transmission system falls into two classes. What are they? | | (1) |
| 7. | Expand EPR & EGR. | | (1) |
| 8. | What are the temperature measurement methods? | | (1) |
| 9. | What is the data rate of Mil-Std-1553b data bus? | | (1) |
| 10. | Define ARINC 429. | | (1) |
| **PART B(5 X 3= 15 MARKS)** | | | |
| 11. | Give a short note on Helmet Mounted Display. | | (3) |
| 12. | Draw a sketch of basic air data system. | | (3) |
| 13. | Explain precision and rigidity. | | (3) |
| 14. | Explain a simple wheatstone’s bridge. | | (3) |
| 15. | Give the specifications of ARINC 429. | | (3) |
| **PART C(5 X 15= 75 MARKS)** | | | |
| 16. |  | What are the different instrument elements and mechanisms? Explain. | (15) |
| (OR) | | | |
| 17. | a. | Give a detailed note on different cockpit display technologies. | (10) |
| b. | What are the design factors that influence the manufacturing of helmet mounted displays? | (5) |
| 18. |  | Comment on air data sensors and computing with it. | (15) |
| (OR) | | | |
| 19. |  | Derive air data law and the following relationship.  i. Altitude – static pressure relationship  ii. Variation of ground pressure  iii. Air density – Altitude relation ship | (7)  (3)  (5) |
| 20. |  | What is a gyro? Comment on gyroscopes present in aircrafts. | (15) |
| (OR) | | | |
| 21. |  | Explain in detail different heading indicating instruments. | (15) |
| 22. |  | What are the temperature measurement methods implemented in aircrafts? | (15) |
| (OR) | | | |
| 23. |  | What are the different fuel flow and quantity measurement methods? Explain. | (15) |
| 24. |  | What are the different avionics architectures used in different generations of development of data bus? Explain | (15) |
| (OR) | | | |
| 25. |  | Write short notes on commercial and military data buses. | (15) |

ALL THE BEST