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 – Nov/Dec– 2017**

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| **Code :** | **14AE2030** | **Duration :** | **3hrs** |
| **Sub. Name :** | **BASICS OF AEROSPACE ENGINEERING** | **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. | Explain the works of Otto Lilienthal and why he remarked ‘Sacrifices must be made”? | 15 | CO1 |
| b. | What is the use of whirling arm apparatus and wind tunnels? | 5 | CO2 |
| (OR) | | | | |
| 2. | a. | What is standard atmosphere and write its importance in aircraft design. | 5 | CO1 |
| b. | What are the disadvantages of gliders and lighter than air flights? | 5 | CO1 |
|  | c.. | Explain how lift is generated in an aerofoil with a line diagram. | 10 | CO1 |
|  |  |  |  |  |
| 3. | a. | Explain the parts and functions of a typical aircraft with a neat sketch. | 15 | CO2 |
|  | b. | Draw the basic stresses acting on an aircraft with illustration. | 5 | CO2 |
| (OR) | | | | |
| 4. | a. | Explain the function and working of engine instruments used in aircrafts. | 10 | CO2 |
|  | b. | Explain how pressure is measured using a pitot tube with a neat sketch. | 10 | CO2 |
|  |  |  |  |  |
| 5. | a. | Explain the use of non metallic materials used for the construction of aircraft structures over the years. | 15 | CO2 |
|  | b. | Write the advantages and disadvantages of solid and liquid propellants used in rocket propulsion. | 5 | CO2 |
| (OR) | | | | |
| 6. | a. | Explain the different fuselage types with its merits and demerits. | 15 | CO2 |
|  | b. | Explain the use of spoilers and thrust reversers in aircrafts. | 5 | CO2 |
|  |  |  |  |  |
| 7. | a. | Explain the principle and working of control surfaces in an aircraft wing with a neat sketch. | 15 | CO2 |
|  | b. | How is thrust developed in a liquid propellant rocket engine? | 5 | CO2 |
| (OR) | | | | |
| 8. | a. | Explain the principal axes of an aircraft and its related maneuvers with a neat sketch. | 15 | CO2 |
|  | b. | Draw the stress-strain curve of a typical composite material. | 5 | CO2 |
|  | |  |  |  |
|  | | **Compulsory**: |  |  |
| 9. | a. | Explain the working of a turbojet engine with a neat sketch. | 15 | CO1 |
|  | b. | Why is the efficiency of a turboprop engine more than a turbojet engine? | 5 | CO1 |

ALL THE BEST