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 :** | **14AE2014** | **Duration :** | **3hrs** |
| **Sub. Name :** | **AIRACRAFT PERFORMANCE** | **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. | Draw the Lift curve for symmetric and cambered airfoil when angle of attack changes. | CO1 | 2 |
| b. | Elaborate airfoil nomenclature with neat sketch. | CO1 | 2 |
| c. | Explain in detail how lift is generated over an airfoil? | CO1 | 4 |
| d. | What is meant by Drag? Explain in detail about types of drag. | CO3 | 12 |
| (OR) | | | | |
| 2. | a. | Define aerodynamic Efficiency. | CO1 | 2 |
| b. | Draw the force diagram of airplane when steady level flight. | CO1 | 2 |
| c. | What is meant by gliding? Explain in detail about gliding flight with neat diagram. | CO3 | 16 |
| 3. | a. | State ground roll. | CO2 | 2 |
|  | b. | Define Takeoff distance. | CO2 | 2 |
|  | c. | Explain in detail about Takeoff performance of flight with neat sketch. | CO1 | 16 |
| (OR) | | | | |
| 4. | a. | Define Thrust Specific Fuel Consumption. | CO2 | 2 |
|  | b. | How do you achieve the Maximum range for Passenger airplane? | CO2 | 2 |
|  | c. | Derive Range and Endurance equation for Propeller driven airplane with neat sketch. | CO2 | 16 |
| 5. | a. | State the conditions for achieving good turning performance of flight. | CO2 | 4 |
|  | b. | Drive the Minimum turn rate and maximum turn radius equation for PUSH UP and PUSH DOWN maneuver. | CO3 | 16 |
| (OR) | | | | |
| 6. | a. | Describe any two importance of V-n diagram. | CO3 | 2 |
|  | b. | Define V-n diagram and explain it with neat sketch. | CO3 | 18 |
| 7. | a. | Define Reverse thrust and state it significance | CO3 | 6 |
|  | b. | Explain in detail about high lift devices used in airplane with neat sketch. | CO3 | 14 |
| (OR) | | | | |
| 8. | a. | Differentiate plain flap and plain aerofoil. | CO3 | 4 |
|  | b. | Elaborate thrust augmentation methods used in flight with neat diagram. | CO3 | 16 |
|  | | Compulsory: |  |  |
| 9. | a. | Differentiate the fixed and variable pitch propeller. | CO2 | 4 |
|  | b. | By considering a propeller is a blade, Derive the Blade elemetary theory with neat sketch. | CO2 | 16 |

ALL THE BEST