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 :** | **15AE3008** | **Duration :** | **3hrs** |
| **Sub. Name :** | **UNMANNED AIRCRAFT SYSTEMS** | **Max. marks :** | **100** |

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

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. |  | Briefly explain the UAV Grouping with Example. | CO1 | 20 |
| (OR) | | | | |
| 2. | a. | Briefly explain the Applications for UAV. | CO1 | 10 |
| b. | Design the UAV to reconnaissance India sea shore having 500 kg overall weight. Specify the size and shape of the wing, fuselage, tail design, specification, power system and avionic requirement. | CO2 | 10 |
| 3. | a. | List of Aircraft state variables. | CO2 | 15 |
|  | b. | Write down the kinematic equation relating to position and velocity. | CO2 | 5 |
|  | c. | Derive the rotational kinematics equation with figure. | CO2 | 5 |
| (OR) | | | | |
| 4. |  | Briefly explain the following   1. LIDAR. 2. Vision sensor. 3. Sound based sensor. 4. Infrared sensor. | CO1 | 20 |
| 5. |  | Discuss the future prospects and challenges of UAV. | CO1 | 20 |
| (OR) | | | | |
| 6. |  | Briefly explain the following   1. Waypoint Switching methods. 2. Various sources of error in time of flight measurement. 3. Control Architecture of UAV. | CO2 | 20 |
| 7. |  | Briefly explain the types of sensors are commonly used for guidance and control of UAVs. | CO2 | 20 |
| (OR) | | | | |
| 8. |  | Briefly explain roles of UAV in Airforce. | CO1 | 20 |
|  | | **Compulsory:** |  |  |
| 9. |  | Briefly explain the Payload types of unmanned aircraft system. | CO2 | 20 |