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



**End Semester Examination – April / May – 2022**

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| **Code :** | **14AE2030 / 18AE2045** | **Duration :** | **3hrs** |
| **Sub. Name :** | **BASICS OF AEROSPACE ENGINEERING** | **Max. Marks :** | **100** |

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| **Q. No.** | **Questions** | **Course Outcome** | **Pattern** | **Marks** |
| **PART – A (10 X 1 = 10 MARKS)** |
| 1. | Who is referred as the father of aerial navigation? | CO1 | Remember | 1 |
| 2. | The first human to be photographed in a flight was \_\_\_\_\_\_\_\_\_\_. | CO1 | Remember | 1 |
| 3. | State the basic difference between atmospheric vehicles and space vehicles. | CO2 | Remember | 1 |
| 4. | The tail end of the aircraft that assists in enabling stability of the flight is known as \_\_\_\_\_\_\_\_\_\_\_.  | CO2 | Remember | 1 |
| 5. | The lift increases with increase in angle of attack until \_\_\_\_\_\_\_\_. | CO3 | Remember | 1 |
| 6. | The force caused by air resistance that slows down an airplane is known as \_\_\_\_\_\_\_\_\_\_\_. | CO3 | Remember | 1 |
| 7. | Major aircraft component which holds the passengers along with cargo is called as \_\_\_\_\_\_\_\_\_\_. | CO4 | Remember | 1 |
| 8. | Any part of the Aircraft structure that fails but is still permissible to fly due to the high reserve factor is known as \_\_\_\_\_\_\_\_\_\_\_ structure.  | CO4 | Remember | 1 |
| 9. | Each material retains its separate chemical, physical, and mechanical properties in \_\_\_\_\_\_\_\_\_\_\_\_. | CO5 | Remember | 1 |
| 10. | The un-burned air mixes with the jet downstream at the nozzle in a \_\_\_\_\_\_\_\_\_\_ Engine. | CO5 | Remember | 1 |

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| **PART – B (6 X 3 = 18 MARKS)** |
| 11. | State the features of Aerial steam carriage proposed by Samuel Henson.  | CO1 | Remember | 3 |
| 12. | State how roll motion is actuated in an aircraft. | CO2 | Remember | 3 |
| 13. | Draw an aerofoil and identify the leading edge and training edge.  | CO3 | Remember | 3 |
| 14. | Quote the advantages and disadvantages of using wood for building aircraft structures.  | CO4 | Remember | 3 |
| 15. | Describe the use of thrust reversers in jet engines. | CO5 | Remember | 3 |
| 16. | Define orbital velocity and escape velocity.  | CO6 | Remember | 3 |

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| **PART – C (6 X 12 = 72 MARKS)****(Answer any five Questions from Q.no 17 to 23)** |
| 17. | a. | Discuss the contributions of sir Otto Lilienthal to the developments of aviation. | CO1 | Understand | 6 |
| b. | Describe the features and importance of the first successful flight by Wright brothers.  | CO1 | Understand | 6 |
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| 18. |  | Discuss the 5 major parts of an aircraft and its functions with a neat sketch.  | CO2 | Understand | 12 |
|  |  |  |  |  |  |
| 19. |  | Describe the different phases of flight while the aircraft travels between two destinations.  | CO3 | Remember | 12 |
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| 20. |  | Explain the structural parts of an aircraft wing.  | CO4 | Understand | 12 |
|  |  |  |  |  |  |
| 21. | a. | Explain the working of a liquid propellant rocket and its types with line sketch. | CO5 | Understand | 6 |
| b. | Explain the different orbits used for positioning the satellites and its applications.  | CO5 | Understand | 6 |
|  |  |  |  |  |  |
| 22. | a. | Reproduce the stress-strain curve of a composite material and a metal and examine the differences.  | CO4 | Remember | 6 |
| b. | Name the secondary flight controls and explain the working of any 2 flight controls. | CO4 | Remember  | 6 |
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| 23. |  | Explain the types of drag forces developed in aircrafts.  | CO3 | Understand | 12 |
|  |  | **Compulsory:** |  |
| 24. |  | Explain the construction and working of a turbojet engine. | CO6 | Understand | 12 |