Reg. No. _____

Karunya University

(Karunya Institute of Technology and Sciences)

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

End Semester Examination – November/December 2011

Subject Title: INTRODUCTION TO AEROSPACE ENGINEERING **Time: 3 hours**

Subject Code: 09AE201 **Maximum Marks: 100**

Answer ALL questions

PART – A (10 x 1 = 10 MARKS)

1. What is the contribution of Sir George Cayley in the history of Aviation?
2. The biggest drawback in Ramjet Engine is _____.
3. The relative wind is in the direction _____ to the direction of the flight.
4. The equation of the coefficient of lift is expressed as _____.
5. The major Aluminum alloy used in Aircraft construction is _____.
6. Cross section of the propeller is in a shape of_____.
7. Specific impulse of a rocket is defined as_____.
8. Spacecrafts are used for a variety of purposes like_____.
9. The purpose of ATC is _____.
10. NASA stands for _____.

PART – B (5 x 3 = 15 MARKS)

11. How are different types of Aircrafts classified?
12. Explain the different parts of an Airfoil of the wing.
13. Differentiate Truss type and Semi-Monocoque type of fuselage construction.
14. State Kepler's laws of planetary motion.
15. Name few Aerospace Research and Development organizations in India and worldwide.

PART – C (5 x 15 = 75 MARKS)

16. Explain in detail the primary control surface and its action of rotation along the axis. How is it controlled by the pilot?

(OR)

17. Explain in detail the basic instruments of flying.

18. a. Derive an equation of Aircraft motion. (7)
    b. Explain the significance of P_R and P_A curve and show its variation of with altitude. (8)

(OR)

19. Explain in detail the different types of Aircraft Stability.

20. Explain with a neat sketch the working principle of twin spool Turbofan engine.

(OR)

21. Explain with a neat sketch and in detail the typical wing construction and explain its structural members.

22. Write short notes on solid propellants including its working, classification, advantages and disadvantages.

(OR)

23. Briefly explain the different types of satellites and its applications.

24. Explain with neat sketch the principles of a Sub-sonic wind tunnel.

(OR)

25. Give the detailed explanation on Flight-testing process and how it is conducted.