

G 1686

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Reg. No.....

Name.....



B.TECH. DEGREE EXAMINATION, MAY 2015

Eighth Semester

Branch : Mechanical Engineering

ME 010 804 L01 – AEROSPACE ENGINEERING (ELECTIVE III) [ME]

(New Scheme – 2010 Admission onwards)

[Regular/Supplementary]

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.

Each question carries 3 marks.

1. Explain the characteristics of stratosphere.
2. What is the significance of Reynolds number?
3. What are propeller charts?
4. Explain Gliding.
5. Write short note on rocket motors.

(5 × 3 = 15 marks)

Part B

Answer all questions.

Each question carries 5 marks.

6. Explain supersonic flow phenomena.
7. Explain characteristics of aerofoil.
8. Enlist and discuss the performance of different aircraft engines.
9. Explain the service and absolute ceilings.
10. Explain the use of wind tunnels.

(5 × 5 = 25 marks)

Turn over

Part C

Answer all questions.

Each question carries 12 marks.

11. Derive the expressions for static, dynamic and stagnation pressures.

Or

12. Explain the pressure, temperature and density variations in international standard atmosphere.

13. Explain 2D viscous flow of bodies applying dimensional analysis.

Or

14. Derive the expressions for pressure distribution in atmosphere.

15. Explain momentum and blade element theories of aerospace engineering.

Or

16. Explain the structure and operation of bypass and after burners.

17. Derive the expressions for length of runway required.

Or

18. Explain (i) Circling and banked flight ; and (ii) Take-off and landing performance.

19. Explain the principles of wind tunnel testing. What are the applications of wind tunnels?

Or

20. Explain the architecture of solid and liquid propellant rockets.

(5 × 12 = 60 marks)

