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Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(Aerospace Engg.) (2012 Onwards) (Sem.-4)

AEROSPACE PROPULSION – I

Subject Code : ASPE-207

M.Code : 71531

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A**1. Write briefly :**

- a) What is S.T.O.L?
- b) Define isentropic efficiency.
- c) What is Scramjet?
- d) Write the thrust equation of a rocket.
- e) Define total impulse for a rocket.
- f) What is Rocket propulsion?
- g) Write the expression for propulsive efficiency of a jet engine.
- h) Define grain with reference to a solid propellant.
- i) What is a Trivial flow?
- j) What is a over expanded nozzle?

SECTION-B

2. Discuss simple compressible system and equation of state.
3. Discuss simple frictional flow and plot a fanno line.
4. Draw a Brayton cycle on T – S diagram and write the expression for specific work output.
5. Discuss and explain the working of a Turboprop engine.
6. Draw a figure of solid propellant motor and explain its working.

SECTION-C

7. Name various types of missiles and discuss about their structures. What is the significance of heat transfer and cooling system in a Rocket?
8. Discuss static performance of a Rocket in details.
9. Discuss the performance of both single and multistage rockets. Write the various applications of Rockets.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.