Reg. No. : | | | | | | | | | | | | |

Question Paper Code: 1015254

B.E. / B.Tech. DEGREE EXAMINATIONS, NOV/ DEC 2024
Fifth Semester
Aeronautical Engineering
U20AE504 – ROCKET PROPULSION
(Regulation 2020)

Time: Three Hours Maximum: 100 Marks

Answer ALL questions

PART – A (10 x 2 = 20 Marks)

1. List out the issues in Hypersonic Air breathing propulsion?

2. What is meant by supersonic combustion?

3. Define Internal Ballistics.

4. Write about linear aerospike nozzles.

5. Mention the selection criteria of solid propellants.

6. Provide few notes about monopropellant.

7. Give few factors to be considered on selecting liquid propellants.

8. Write few advantages of liquid propellant rockets over solid propellant.

9. State the principle of ion propulsion.

10. Compare the performance of nuclear rocket over chemical rocket propulsion?

PART – B (5 x 16 = 80 Marks)

11. (a) Explain the operating principle of scramjet engine with neat sketch. (16)

(OR)

(b) Discuss the problems associated with supersonic combustion. (16)

12. (a) Elaborate the classification of nozzles for chemical rockets. (16)

(OR)

(b) Describe the basic performance characteristics of chemical rocket system. (16)

13. (a) Discuss the propellant grain design considerations and their types in detail. (16)

(OR)

(b) Incorporate the different types of solid propellants and explain its applications.(16)

14. (a) Discuss in detail about the different types of feed systems in liquid propellant rockets. (16)

(OR)

(b) Interpret the process of thrust vector control in liquid propellant rockets. (16)

15. (a) Describe the purpose and working principle of solar sail. (16)

(OR)

(b) Elaborate the function of nuclear propulsion and why it is not widely used? (16)

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