Question Paper Code : 21029

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2013.

Fifth Semester

Aeronautical Engineering

AE 2304/AE 1351/AE 71/080180029/10122 AE 504 — PROPULSION — II

(Regulation 2008/2010)

Time : Three hours Maximum : 100 marks

Gas tables may be permitted.

Answer ALL questions.

PART A — ($10 \times 2 = 20$ marks)

1. Distinguish between impulse blading and reaction blading of gas turbines.

2. What are the limiting factors in gas turbine design?

3. Distinguish between ramjet and scramjet.

4. What are the advantages and disadvantages of integral ram-rocket?

5. Describe briefly three important applications of rocket propulsion.

6. Define characteristic velocity with respect to a rocket system.

7. Define temperature sensitivity coefficient of a solid propellent.

8. Name any two properties of liquid propellent.

9. Describe the basic principles of nuclear propulsion.

10. Why are electrical rockets called essentially power limited?

14. (a) (i) Explain the selection criteria of solid propellants. (8)

(ii) Enumerate the important hardware components of solid rockets. (8)

Or

(b) (i) Discuss the selection criteria of liquid propellants. (8)

(ii) Evaluation of design considerations for propellant grain. (8)

15. (a) (i) Draw a neat sketch and explain about effective rocket propulsion technique. (8)

(ii) Draw a neat sketch and explain the general working of nuclear rocket. (8)

Or

(b) (i) With a neat sketch explain ion propulsion rocket. (8)

(ii) Describe the preliminary concepts in nozzleless propulsion. (8)