

PART C (5 x 14 = 70 Marks)

21. a) What are the assumptions involved while designing a new rocket using accepted ideal rocket practices?

(OR)

- b) Summarize the significance of thrust coefficient. Obtain the relation for thrust coefficient from the first principle. What do you mean by optimum thrust coefficient?

22. a) Illustrate about the pyrotechnic and pyrogen igniters with detailed sketches. Mention about its advantages and disadvantages.

(OR)

- b) List down the components of Live Igniters. Explain about each component with their characteristics and its necessary sketches.

23. a) List down the selection criteria of solid propellants.

(OR)

- b) What are the important factors that influence the burning rate of a solid propellant? Illustrate them with appropriate sketches.

24. a) What is the necessity of the propellant feed system in the case of liquid rocket engine? With the help of a schematic diagram, explain elaborate scheme of a typical turbo pump feed system.

(OR)

- b) List and briefly explain the methods of cooling adopted for rocket motors.

25. a) (i) Draw neat sketch and explain the general working principle of a nuclear rocket. (7)
(ii) Draw a neat sketch and briefly explain about electric rocket propulsion technique. (7)

(OR)

- b) (i) Explain the working of electric plasma rocket with a neat sketch. (7)
(ii) Describe the concept of Nozzle less propulsion with their merits and demerits. (7)
