

SEVENTH SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2016

(2013 SCHEME)

13.704 ROCKET PROPULSION (S)

Time: 3 Hours

Max.Marks:100

N.B: Answer all questions from PART- A and any one question from each module in PART-B.

PART – A

1. Define specific impulse
2. Define Air Augmented rockets
3. Define silver and web fraction
4. Difference between strand burner and T-burner
5. Differentiate burning time and action time
6. List out various types of injectors used in a liquid propellant
7. What do you meant by propellant budget
8. List out igniters used in solid rocket motors
9. Describe hall effect
10. What do you meant by Magnetic sail (2*10=20)

PART-B

MODULE-1

11. a) Briefly describe about Rocket testing and various instruments in Rockets (10)
b) Explain different types of chemical rockets (10)

OR

12. a) Explain internal ballistics of rocket motor (10)
b) What are the performance parameters taken in account for chemical rockets (10)

MODULE-2

- 13. a) Classification of solid propellant (10)**
b) Explain Propellant grain configuration (10)

OR

- 14. a) What are the various solid propellants used in rockets (10)**
b) Briefly describe about Erosive burning and combustion instability (10)

MODULE-3

- 15. a) Explain various feed systems used in a liquid propellant rocket engine (10)**
b) Explain Various liquid propellant used in rocket engine (10)

OR

- 16. a) Explain combustion mechanism in a hybrid propellant rocket (10)**
b) Explain about various parts of Liquid propellant rocket engine (10)

MODULE -4

- 17. a) Describe about the various thrusters used in electric propulsion (10)**
b) Explain various types of power supply units used in electric propulsion (10)

OR

- 18. a) What is Nuclear propulsion. Explain its advantages and applications (10)**
- b) What are the various non-conventional propulsion techniques (10)**