

CBCS SCHEME

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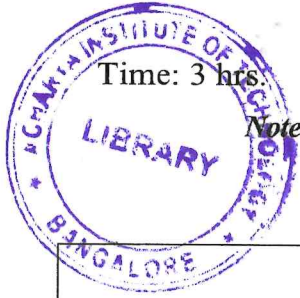
BAE515B

Fifth Semester B.E./B.Tech. Degree Examination, June/July 2026 Rockets and Missiles

Time: 3 hrs.

Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.



Module – 1			M	L	C
Q.1	a.	Write a note on some famous space launch vehicles and strategic missiles.	10	L1	CO1
	b.	Explain the functions and types of space launch vehicle and military missiles.	10	L2	CO1
OR					
Q.2	a.	Explain the mission profile of space launch vehicles with a neat diagram.	10	L2	CO1
	b.	Draw thrust profile of a typical solid propellant motor and explain all the terms involved.	10	L3	CO1
Module – 2					
Q.3	a.	List the solid propellant characteristics.	8	L2	CO1
	b.	Explain the grain configuration for solid propellants.	12	L2	CO1
OR					
Q.4	a.	Define explain and compare the mono propellant and bi-propellant and cold gas propellant of liquid propellant.	8	L2	CO1
	b.	Explain the liquid propellant rocket engine with a gas pressure feed system.	12	L2	CO1
Module – 3					
Q.5	a.	Explain with a neat sketch the airframe components of rockets and missiles.	10	L2	CO2
	b.	Explain the classification of missiles.	10	L2	CO2
OR					
Q.6	a.	Derive the expression for forces acting on a missile while passing through atmosphere.	10	L3	CO2
	b.	Explain the drag estimation due to different missiles drag components.	10	L2	CO2

Module – 4

Q.7	a.	Derive the equation of motion in one dimension and from there derive and explain Tsiolkovsky's Ideal rocket equation.	10	L2	CO3
	b.	Explain the different actual launch trajectories.	10	L3	CO3

OR

Q.8	a.	Explain the thrust magnitude control with neat diagram.	10	L2	CO3
	b.	Explain the four categories of Thrust Vector Control (TVC) mechanism and its types.	10	L2	CO3

Module – 5

Q.9	a.	Explain with neat sketch a typical static test stand for large liquid propellants.	8	L2	CO3
	b.	Write short notes on : i) Flight Testing ii) Post Accident Procedures.	8	L2	CO3
	c.	List the physical quantities to be measured in rocket testing.	4	L2	CO3

OR

Q.10	a.	Explain the criteria for selection of materials for rockets and missiles.	10	L2	CO3
	b.	Explain the requirements of materials for thermal protection and pressure vessel.	10	L2	CO3
