CLASS: MTECH   SEMESTER : I
BRANCH: SER   SESSION : MO/19

SUBJECT: SR503 SPACE ENGINEERING AND SPACE DYNAMICS

TIME: 3 HOURS   FULL MARKS: 50

INSTRUCTIONS:
1. The question paper contains 5 questions each of 10 marks and total 50 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
4. Before attempting the question paper, be sure that you have got the correct question paper.
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

Q.1(a)	Briefly discuss on lunar and deep space missions.	[5]
Q.1(b)	Write short notes on:	[2.5×2]
	(i) Space plasma and Spacecraft charging	
	(ii) Weightlessness and Microgravity	

Q.2(a)	Describe the factors causing dispersion of rockets in ground launch.	[5]
Q.2(b)	Derive the expression for velocity of a rocket in gravity free, drag free space flight.	[5]

Q.3(a)	Explain satellite injection parameters.	[5]
Q.3(b)	Analyze injection error with an example.	[5]

Q.4(a)	Analyze the average heating rate for gliding entry.	[5]
Q.4(b)	Explain major disturbance torques with proper expressions.	[5]

Q.5(a)	Explain the sizing procedure for batteries.	[5]
Q.5(b)	Which design drivers affect the selection and deployment of power sources? List some power sources.	[5]

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