

# GBCS SCHEME

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18AS81

## Eighth Semester B.E. Degree Examination, July/August 2022 Spacecraft Systems

Time: 3 hrs.

Max. Marks: 100

*Note: Answer any FIVE full questions, choosing ONE full question from each module.*

### Module-1

- 1 a. Write the peculiarities of space environment. (10 Marks)  
b. Explain the requirements and constraints of a satellite missions (10 Marks)

OR

- 2 a. Write the requirement for low earth orbit satellite along with its advantages and disadvantages. (10 Marks)  
b. Briefly discuss charged particle motion along with the required equation. (10 Marks)

### Module-2

- 3 a. Explain how the star trackers work along with its sensor limitation. (10 Marks)  
b. Explain the working of reaction wheel. (10 Marks)

OR

- 4 Derive the expression for gravity gradient torque for an spacecraft. (20 Marks)

### Module-3

- 5 a. Comment on Nickel-Cd batteries with memory effect? (10 Marks)  
b. Explain the working of electrochemical cell. (10 Marks)

OR

- 6 Comment on solar panel array design and construction. (20 Marks)

### Module-4

- 7 a. Explain the working of Flyback converter. (10 Marks)  
b. Comment on voltage and current regulators. (10 Marks)

OR

- 8 a. Explain the working of transformer coupled forward converters. (10 Marks)  
b. Explain how multiple output converter works. (10 Marks)

### Module-5

- 9 a. Explain the working of monopropellant systems. (10 Marks)  
b. Comment on baseband telemetry systems along with signal modulation. (10 Marks)

OR

- 10 Comment on telecommand system along with its transmission of command. (20 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and/or equations written eg, 42+8 = 50, will be treated as malpractice.