

Code: 20EC4703A

IV B.Tech - I Semester – Regular Examinations - DECEMBER 2023

**GLOBAL POSITIONING SYSTEMS
(ELECTRONICS & COMMUNICATION ENGINEERING)**

Duration: 3 hours

Max. Marks: 70

Note: 1. This paper contains questions from 5 units of Syllabus. Each unit carries 14 marks and have an internal choice of Questions.

2. All parts of Question must be answered in one place.

BL – Blooms Level

CO – Course Outcome

			BL	CO	Max. Marks
UNIT-I					
1	a)	Explain the functioning and components of Global Positioning System.	L2	CO1	7 M
	b)	Discuss various steps involved in the Satellite Position Determination.	L4	CO4	7 M
OR					
2	a)	Draw the functional block diagram of the Master Control Station. Also explain the functions of each block.	L2	CO1	7 M
	b)	Discuss in detail about Satellite Constellation Design.	L2	CO4	7 M
UNIT-II					
3	a)	Compare C/A Code and P code in GPS signal structure.	L2	CO1	7 M
	b)	Demonstrate International Atomic Time system in GPS.	L3	CO2	7 M

OR					
4	a)	Compare SPS and PPS in GPS signal structure.	L2	CO1	7 M
	b)	Explain how the pseudo range between satellite and receiver (user) can be computed using code and carrier phase measurements.	L2	CO2	7 M
UNIT-III					
5	a)	Explain the following errors in GPS receivers i) Ionospheric errors. ii) Tropospheric errors.	L2	CO1	8 M
	b)	Summarize the satellite receiver and clock error & multipath error.	L3	CO2	6 M
OR					
6	a)	Explain in detail about GPS ephemeris errors.	L2	CO2	7 M
	b)	Explain the following errors in GPS i. Delta Error, ii. Epsilon Error and iii. Orbital Error.	L2	CO2	7 M
UNIT-IV					
7	a)	Explain the RINEX format of navigation data files and meteorological file.	L2	CO1	7 M
	b)	Analyze various RTCM SC-104 GPS standard formats.	L4	CO3	7 M

OR					
8	a)	Explain the NMEA 0183 GPS standards and Data streams.	L2	CO1	7 M
	b)	Compare RINEX and NGS-SP3 GPS data standards.	L4	CO3	7 M
UNIT-V					
9	a)	List the GPS applications for the utilities industry and explain at least two applications as examples in detail.	L2	CO1	7 M
	b)	Compare the GPS Applications of utility Industry and precision forming.	L4	CO4	7 M
OR					
10	a)	List the GPS applications for the Precision farming and explain at least two applications as examples in detail.	L2	CO1	7 M
	b)	Distinguish Various GPS applications related to forestry and natural recourses.	L4	CO4	7 M