

Code: 19EC4702A

**IV B.Tech - I Semester – Regular Examinations - DECEMBER 2022**

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

Duration: 3 hours

Max. Marks: 70

- Note: 1. This question paper contains two Parts A and B.  
 2. Part-A contains 5 short answer questions. Each Question carries 2 Marks.  
 3. Part-B contains 5 essay questions with an internal choice from each unit. Each question carries 12 marks.  
 4. All parts of Question paper must be answered in one place.

BL – Blooms Level

CO – Course Outcome

**PART – A**

		BL	CO
1. a)	List out the GPS satellite generations.	L1	CO1
1. b)	Write the equation for GPS satellite transmitted signal and mention all the parameters of the equation. What are the frequencies of GPS signals?	L1	CO2
1. c)	What is User Equivalent Range Error (UERE)? Give its significance.	L1	CO3
1. d)	Name the existing GPS data formats.	L1	CO4
1. e)	Extend the application of GPS for open pit-mining.	L2	CO5

## PART – B

			BL	CO	Max. Marks
<b>UNIT-I</b>					
2	a)	Describe the GPS Satellite constellation with a neat diagram.	L2	CO1	6 M
	b)	Explain the basic principle of operation for GPS and its architecture.	L2	CO1	6 M
<b>OR</b>					
3	a)	Explain in detail about PPS and SPS.	L2	CO1	4 M
	b)	Describe GPS segments with suitable diagrams.	L2	CO1	8 M
<b>UNIT-II</b>					
4	a)	Explain the Trilateration method to estimate the user position in 3D.	L2	CO2	6 M
	b)	Explain about GPS modernization.	L2	CO2	6 M
<b>OR</b>					
5		Draw the functional block diagram of the GPS receiver. Explain the signal processing functions of the GPS receiver.	L2	CO2	12 M
<b>UNIT-III</b>					
6	a)	Explain the errors that are limiting the GPS system performance.	L2	CO3	6 M
	b)	Describe ionospheric error and also illustrate its effect on pseudo range estimation.	L3	CO3	6 M
<b>OR</b>					
7		Write about the following (i) GPS Time	L3	CO3	12 M

	(ii) Antispoofing (iii) Selective Availability				
<b>UNIT-IV</b>					
8	a)	Explain in detail about the GPS data format NGS-SP3.	L2	CO4	6 M
	b)	Compare between various GPS data formats	L2	CO4	6 M
<b>OR</b>					
9		Explain the RINEX format of observation and navigation data files.	L2	CO4	12 M
<b>UNIT-V</b>					
10	a)	Describe the application of GPS in precision farming.	L3	CO5	6 M
	b)	Discuss about the role of GPS in Civil engineering applications.	L3	CO5	6 M
<b>OR</b>					
11	a)	Explain how GPS is used for airborne mapping, sea floor mapping.	L3	CO5	8 M
	b)	Write short notes on application of GPS for natural resources	L4	CO5	4 M