Question Paper Code: R18A41EC04

R18

ANURAG Engineering College

(An Autonomous Institution)

IV B.Tech I Semester Regular/Supplementary Examinations, Dec-2024

SATELLITE COMMUNICATIONS

(ELECTRONICS AND COMMUNICATION ENGINEERING)

Time: 3 Hours **Max. Marks: 75**

Section – A (Short Answer type questions) (25 Marks)

Answer All Questions		Course Outcome	B.T Level	Marks
1.	Define ascending node and argument of perigee.	CO1	L1	2M
2.	What is a Look Angle?	CO1	L1	3M
3.	Write short notes on altitude and orbit control system.	CO2	L1	2M
4.	State the basic requirements of an earth station antenna.	CO2	L2	3M
5.	What are the functions of the Earth station?	CO3	L1	2M
6.	What are the various interferences that may affect the satellite link performance?	CO3	L1	3M
7.	List out the advantages and disadvantages of LEO.	CO4	L1	2M
8.	Discuss about the coverage and frequency considerations.	CO4	L2	3M
9.	What are the advantages of GPS system?	CO5	L1	2M
10.	What is Satellite Navigational system?	CO5	L1	3M

Section B (Essay Questions)

Answer all questions, each question carries equal marks. (5 X 10M = 50M)

11. A)	Explain the different applications & different services provided by satellite services.	CO1	L2	10M
	OR			
B)	A satellite is in elliptical orbit with a perigee of 1100 km and an apogee of 4200 km. usingthe mean earth radius of 6378.1 km. Find the period of the orbit and eccentricity the orbits.	CO1	L3	10M
12. A)	Explain Telemetry, Tracking and Command system with suitable diagrams.	CO2	L2	10M
	OR			
B)	List out the different types of satellite antennas used in communications systems and explain any twowith neat diagrams.	CO2	L3	10M
13. A)	Derive the expressions for the system noise temperature, noise figure and G/T ratio ofan Earth station receiver.	CO3	L3	10M
	OR			
B)	Draw the diagram of an Earth Station and explain the function of each block.	CO3	L3	10M
14. A)	Explain the different types of satellite orbits.	CO4	L2	10M
	OR			
B)	Explain in detail about the operational NGSO constellation designs.	CO4	L2	10M
15. A)	Explain about the GPS receivers and its codes.	CO5	L2	10M
	OR			
B)	Describe the format of GPS navigation message.	CO5	L3	10M