

ANURAG Engineering College
(An Autonomous Institution)
IV B.Tech I Semester Supplementary Examinations, April – 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. What are the advantages & applications of satellite communications?	CO1	L1	2M
2. Describe frequency allocation for satellite systems.	CO1	L2	3M
3. List the different power systems used in satellite communication.	CO2	L1	2M
4. Write a short notes on satellite antennas.	CO2	L2	3M
5. Give the expression for power received by a real antenna.	CO3	L2	2M
6. Describe the terrestrial interface in earth station.	CO3	L2	3M
7. List the advantages and disadvantages of inclined orbits.	CO4	L1	2M
8. What is the significance of sun synchronous orbit?	CO4	L2	3M
9. Define selective availability in GPS system.	CO5	L1	2M
10. Illustrate GPS navigation message with neat diagram	CO5	L2	3M

Section B (Essay Questions)**Answer all questions, each question carries equal marks.****(5 X 10M = 50M)**

11. A) State Kepler's three laws of planetary motion. Demonstrate the relevance of three laws to artificial satellites orbiting the earth.	CO1	L3	10M
OR			
B i) A satellite is in an elliptical orbit with a perigee of 1500 km and an apogee of 6000km. Find the period and eccentricity of the orbit.	CO1	L3	5M
ii) What are the different orbital effects in communication systems performance? Explain.	CO1	L2	5M
12. A) Distinguish the significance of TTC& M subsystem in a satellite.	CO2	L3	10M
OR			
B) Illustrate the functioning of AOCS with a neat functional block diagram.	CO2	L3	10M
13. A) Derive the expression for system noise temperature of a satellite link.	CO3	L3	10M
OR			
B) Describe about transmitters and receivers of earth Station Technology	CO3	L2	10M
14. A) Analyse the concept of Coverage and Frequency Considerations.	CO4	L2	10M
OR			
B) Describe the Operational NGSO Constellation Designs in detail	CO4	L2	10M
15. A) What are the different segments in GPS configuration? Explain.	CO5	L3	10M
OR			
B) Explain GPS signal levels in detail	CO5	L2	10M