

**PRAGATI ENGINEERING COLLEGE: SURAMPALEM**  
**(AUTONOMOUS)**  
**IV B.Tech II Semester Supplementary Examinations, May - 2024**

**SATELLITE COMMUNICATION**  
**(ELECTRONICS AND COMMUNICATION ENGINEERING)**

Time: 3 hours

Max. Marks: 70M

Answer ONE Question from each Unit  
 All Questions Carry Equal Marks

Q. No.		Questions	BTL	CO	Marks
UNIT – I					
1.	a)	What are look angles? Describe with relevant mathematical expressions	K2	CO1	7M
	b)	Explain the principle of launching and various satellite launch vehicles.	K1	CO1	7M
OR					
2.	a)	Explain the Kepler’s three laws of planetary motion.	K2	CO1	7M
	b)	Describe in detail the various orbital effects in communication system performance.	K1	CO1	7M
UNIT – II					
3.	a)	Explain the functions of Telemetry, Tracking, Command and monitoring system with a neat block diagram	K2	CO2	7M
	b)	Write short notes on Satellite antennas.	K1	CO2	7M
OR					
4.	a)	What is attitude control? Discuss the need and functional details of the attitude and orbit Control system	K1	CO2	7M
	b)	Explain the attitude and orbit control system with necessary diagrams.	K2	CO2	7M
UNIT – III					
5.	a)	What is the link equation? Derive the expression for it.	K2	CO3	7M
	b)	Explain briefly about uplink satellite circuits	K1	CO3	7M
OR					
6.	a)	In a satellite link, the propagation loss is 200dB. Margins and other losses account for another 3dB. The receiver G/T is 11dBK-1 and the EIRP is 5dBW. Calculate the received C/N in dB for a system BW of 36MHz.	K3	CO3	7M
	b)	With the help of a neat block diagram, discuss the operation of earth station receiver.	K2	CO3	7M
UNIT – IV					
7.	a)	What is intermodulation? How it effects the calculation of C/N in FDMA systems? Explain.	K2	CO4	7M
	b)	Briefly Explain about Code Division Multiple Accesses.	K2	CO4	7M
OR					

8.	a)	Draw and explain the frame structure of TDMA.	K2	CO4	7M
	b)	Explain in detail about the spread spectrum transmission and reception (CDMA).	K2	CO4	7M
<b>UNIT – V</b>					
9.	a)	Describe the features of various GNSS systems.	K1	CO5	7M
	b)	Explain the GPS receiver operation with a neat diagram.	K1	CO5	7M
<b>OR</b>					
10.	a)	Write short notes on GPS codes.	K1	CO5	7M
	b)	Explain the principle of a differential GPS with a neat diagram.	K2	CO5	7M