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VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN
[AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]
Elayampalayam – 637 205, Tiruchengode, Namakkal Dt., Tamil Nadu.

Question Paper Code: 70055

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – JAN. 2025

Sixth Semester

Computer Science and Technology

U19ECO4 – SATELLITE COMMUNICATION

(Regulation 2019)

Time : Three Hours

Maximum : 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	Distinguish mean anomaly and true anomaly.	2	K5	CO1
2.	Define apogee and Perigee.	2	K1	CO1
3.	Identify the function of transponder in a satellite.	2	K2	CO2
4.	A satellite downlink at 12 GHz operates with a transmit power of 6W and an antenna gain of 48.2dB. Calculate the EIRP in dB.	2	K3	CO2
5.	List the multiple access techniques in satellite.	2	K1	CO3
6.	Write short notes on CDMA throughput.	2	K2	CO3
7.	Write the features of MATV.	2	K1	CO4
8.	State the basic requirements of an earth station antenna.	2	K1	CO4
9.	Identify the role of INTELSAT.	2	K2	CO5
10.	What is the difference between geo stationary and polar-orbiting satellites?	2	K2	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.	Questions	Marks	KL	CO
11. a)	State and explain Kepler's three laws of motion with suitable diagrams.	13	K2	CO1

(OR)

- b) i. Draw and explain the geometry for determining the sub satellite point. 7 K2 CO1
ii. Explain the limits of visibility in satellite orbits. 6
12. a) What are the three main systems for tracking satellites? How are the tracking systems affected? What are the main functions of TTC subsystem? Explain. 13 K2 CO2

(OR)

- b) Briefly explain the sources of noise in satellite communication. Mention the importance of noise Temperature in link design. 13 K2 CO2
13. a) Elaborate direct sequence CDMA with necessary diagrams. 13 K2 CO3

(OR)

- b) Compare the uplink power requirements for FDMA and TDMA. 13 K5 CO3
14. a) i. Draw the block diagram and explain TVRO system. 7 K2 CO4
ii. Explain CATV in detail with neat diagram. 6

(OR)

- b) Explain the earth station transmitter and receiver with necessary block diagram. 13 K2 CO4
15. a) With a neat block diagram explain the working principle of DBS-TV receiving system. 13 K2 CO5

(OR)

- b) Discuss in detail about GPS satellite services. 13 K2 CO5

PART – C

(1 x 15 = 15Marks)

- | Q.No. | Questions | Marks | KL | CO |
|--------|--|-------|----|-----|
| 16. a) | How mobile services are used in satellite communication systems? Explain the block diagram of GSM. | 15 | K2 | CO5 |

(OR)

- b) Illustrate the various satellite ATM Network architectures with necessary diagrams. 15 K2 CO4