Register Number:……..

KUMARAGURU
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B.E DEGREE EXAMINATIONS: APRIL / MAY 2023

(Regulation 2018)

Seventh Semester

ELECTRONICS AND COMMUNICATION ENGINEERING

U18ECE0002: Satellite Communication

COURSE OUTCOMES

CO1: Discuss orbital mechanics and launch methodologies.
CO2: Describe various space subsystems.
CO3: Explain different subsystems of earth segment.
CO4: Apply signal processing for satellite communication.
CO5: Design and analyze link power budget for satellites.
CO6: Describe various Satellite Applications.

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-
PART A (10 x 2 = 20 Marks)
(Answer not more than 40 words)

1.	Classify the types of satellite orbits.	CO1	[K_2]
2.	What are satellite look angles?	CO1	[K_2]
3.	Summarize the function of satellite Transponder.	CO3	[K_2]
4.	Compare the significant features of Community antenna TV and Master antenna TV.	CO3	[K_3]
5.	List the modulation schemes employed in satellite communication.	CO4	[K_2]
6.	Define spread spectrum communication.	CO4	[K_2]
7.	List the various losses that may affect the satellite link performance.	CO5	[K_2]
8.	Recall the combined uplink and downlink C/N ratio equation.	CO5	[K_2]
9.	Outline the features of video conferencing.	CO6	[K_2]
10.	What is VSAT?	CO6	[K_2]

Answer any FIVE Questions:-
PART B (5 x 16 = 80 Marks)
(Answer not more than 400 words)

11.	a)	State Kepler's three laws of planetary motion. Illustrate in each case their relevance to artificial satellites orbiting the earth.	8	CO1	[K_3]
	b)	Discuss the following: Satellite launching procedure and Satellite eclipse	4+4	CO1	[K_2]

12.	a)	Examine how the Attitude and Orbit Control System (AOCS) is achieved through spin stabilization systems? Give necessary diagrams.	10	CO2	[K_3]
	b)	Illustrate the tracking, telemetry and command facilities of a satellite communication system.	6	CO2	[K_2]
13.		Illustrate and analyze the features of various multiple access schemes deployed for satellite access and compare it.	16	CO4	[K_3]
14.		Derive the satellite link power budget equations and examine the various interferences that may affect the satellite link performance.	16	CO5	[K_3]
15.	a)	Illustrate the working of a GPS receiver with a neat sketch and explain how the satellite signal acquisition is made.	10	CO6	[K_2]
	b)	Explain the principle of DTH system with the help of neat block diagrams.	6	CO6	[K_2]
16.	a)	Outline the salient features of INSAT and INMARSAT.	10	CO6	[K_3]
	b)	Discuss about equipment reliability of satellite subsystems.	6	CO2	[K_2]

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