

THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)***UG/PG DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL-MAY 2026*****Sixth Semester******Electronics and Communication Engineering*****CEC352 – SATELLITE COMMUNICATION*****Regulations –2021******Duration: 3 Hrs******Maximum : 100 Marks******PART – A(ANSWER ALL QUESTIONS) (Marks 10*2=20)***

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
1.	State Kepler's first and second law.	K1	1	2
2.	What causes a sun transit outage?	K1	1	2
3.	Calculate the power required if a satellite's payload needs 500 W and the efficiency is 80%.	K3	2	2
4.	Sketch the block diagram of transponder.	K2	2	2
5.	The distance between a ground station and the satellite is considered to be 42000km. Find the free space loss at a frequency of 6GHz.	K3	3	2
6.	Brief how does the frequency reuse works in the perspective of satellite communication.	K2	3	2
7.	Mention the purpose of digital video broadcasting?	K1	4	2
8.	Specify the encryption techniques used in satellite communication.	K1	4	2
9.	List the types of GPS services.	K1	5	2
10.	Compare GPS and differential GPS.	K2	5	2

PART – B (ANSWER ALL QUESTIONS) (Marks 5*16 = 80)

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
11. a	i Explain the different orbital components that make up a satellite's orbit.	K2	1	8
	ii Compare geostationary and non-geostationary orbits with suitable diagrams and examples.	K2	1	8
	Or			
b	i Explain the launching procedures of satellites.	K2	1	8
	ii Describe the role of launch vehicles and propulsion systems.	K2	1	8
12. a	Explain in detail the structure of a communication satellite. What are the major components and how do they integrate to support communication?	K2	2	16
	Or			
b	Discuss how telemetry, tracking, and command (TT&C) systems are implemented and coordinated in satellite operations.	K2	2	16
13. a	i Derive the satellite uplink and downlink design equations.	K2	3	8
	ii Explain how satellite transmissions are affected by rain attenuation. In link design, how is it calculated and mitigated?	K2	3	8
	Or			
b	i What does ionospheric scintillation encompass? What are the effects on satellite communication, and how can it be mitigated?	K2	3	8

	ii	Explain system noise temperature and how it affects satellite link performance.	K2	3	8
14.	a	Describe the different multiplexing and modulation methods used in voice, data, and video satellite transmission.	K2	4	16
		Or			
	b	How does Code Division Multiple Access (CDMA) technology improve the efficiency and reliability of satellite communication systems, and what specific challenges does it help overcome compared to TDMA and FDMA used in satellite systems.	K2	4	16
15.	a	Analyse INTELSAT and INSAT series. Highlight their roles in satellite communication.	K4	5	16
		Or			
	b	Describe Direct Broadcast Satellites (DBS/DTH) and analyze how they are used in television transmission.	K4	5	16
