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25ELP103

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION DECEMBER 2025
(First Semester)

Branch – **APPLIED ELECTRONICS**

ADVANCED COMMUNICATION SYSTEMS

Time: Three Hours Maximum: 75 Marks

SECTION-A (10 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks (10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	Which multiple access technique is used in GSM (2G)? a) FDMA b) CDMA c) TDMA/FDMA d) OFDMA	K1	CO1
	2	GPRS uses which type of switching technique? a) Circuit switching b) Packet switching c) Virtual circuit switching d) Hybrid switching	K2	CO1
2	3	One of the biggest challenges in LTE deployment is: a) High latency b) Limited voice support (VoLTE requirement) c) Analog interference d) Circuit switching issues	K1	CO2
	4	Which industry benefits most from LTE's Machine-to-Machine (M2M) capability? a) Agriculture b) IoT and Smart Cities c) Postal services d) Manual telegraphy	K2	CO2
3	5	What is the approximate latency goal of 5G networks? a) 100 ms b) 10 ms c) 1 ms d) 0.1 ms	K1	CO3
	6	In 5G, network slicing is used for: a) Splitting antenna beams b) Creating virtual networks for specific services c) Reducing spectrum d) Cutting down cell towers	K2	CO3
4	7	Which of the following is a main advantage of fiber optic communication? a) High bandwidth and low loss b) Susceptibility to electromagnetic interference c) Heavy weight d) Limited data capacity	K1	CO4
	8	The device used to join two optical fibers permanently is called: a) Optical coupler b) Optical amplifier c) Splicer d) Modulator	K2	CO4
5	9	The orbital period of a satellite depends mainly on: a) Its mass b) Altitude of the orbit c) Antenna size d) Transponder power	K1	CO5
	10	Which of the following is a typical parameter in satellite link design? a) Bit error rate (BER) b) Color of satellite body c) Orbit inclination d) Satellite mass	K2	CO5

Cont...

SECTION - B (35 Marks)

Answer **ALL** questions
ALL questions carry **EQUAL** Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	What is the role of a base station in a cellular network?	K4	CO1
		(OR)		
	11.b.	What is HSPA and what are its main components?		
2	12.a.	Explain the features of LTE that make it suitable for 4G mobile communication.	K4	CO2
		(OR)		
	12.b.	Classify the main applications of LTE networks.		
3	13.a.	Compare between Release 15 and Release 16.	K5	CO3
		(OR)		
	13.b.	Examine role of the 5G Core (5GC) play in roaming.		
4	14.a.	Explain the significance of fiber optics in modern telecommunication networks.	K4	CO4
		(OR)		
	14.b.	Explain the role of refractive index in fiber optics.		
5	15.a.	Summarize the working of a satellite communication system with a block diagram.	K4	CO5
		(OR)		
	15.b.	Explain the working and components of an earth station.		

SECTION -C (30 Marks)

Answer **ANY THREE** questions
ALL questions carry **EQUAL** Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Explain the working of TDMA and discuss its advantages and disadvantages in mobile communication systems.	K4	CO1
2	17	Explain the LTE architecture and its major components.	K5	CO2
3	18	Summarize the roadmap for 5G network deployments and the key challenges involved.	K6	CO3
4	19	Describe the causes and types of losses in optical fiber communication.	K4	CO4
5	20	Discuss the factors affecting satellite orbit selection and the advantages of different orbits.	K5	CO5

Z-Z-Z END