Reg. No.															

Question Paper Code	13624

B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2025

Sixth Semester

Computer and Communication Engineering

20CCPW601 - WIRELESS COMMUNICATION AND COMPUTING WITH LABORATORY

Regulations - 2020

Duration: 3 Hours Max. Marks: 100

PART - A (MCQ) (10 × 1 = 10 Marks)

Answer ALL Questions

		Marks	K – Level	CO
1.	4G Long-Term Evolution (LTE) internet connection based on _____. (a)WAN (b) LAN (c) MAN (d) PAN	1	K1	CO1
2.	_____ are examples of unguided media. (a) Atmosphere (b) Outer space (c) Inner space (d) Both atmosphere and outer space	1	K1	CO1
3.	_____ best characterizes a situation where there is a direct LOS path in addition to a number of indirect multipath signals. (a) Frequency selective fading (b) Rician fading (c) Rayleigh fading (d) Flat fading	1	K1	CO2
4.	The device used for converting analog data into digital form for transmission and subsequently recovering the original analog data from the digital is known as a _____. (a) Codec (b) Modem (c) Router (d) Fiber optical cable	1	K1	CO2
5.	The code in convolution coding is generated using (a)EX-OR logic (b) AND logic (c) OR logic (d) None of the mentioned	1	K1	CO3
6.	The noise interferes with the signal so that the receiver cannot interpret the signal is called (a) jamming (b) anti-jam (c) jamming margin (d) PN sequence	1	K1	CO3
7.	Which of the following is an interface used in GSM. (a) A interface (b) A-bis interface (c) Air interface (d) All of the mentioned	1	K1	CO4
8.	In which of the following systems, time synchronization is required. (a) FDMA (b) TDMA (c) CDMA (d) SDMA	1	K1	CO4
9.	Which among these offer packet mode data transfer service over the cellular network? (a) GSM (b) GPRS (c) TCP (d) UDP	1	K1	CO5
10.	Which layer is responsible for fragmentation and encryption in 802.11 WLAN? (a) LLC (b) MAC (c) PMD (d) None of the mentioned	1	K1	CO6

PART - B (12 × 2 = 24 Marks)

Answer ALL Questions

11.	Let us consider an example that relates the Nyquist and Shannon formulations. Suppose that the spectrum of a channel is between 3MHZ and 4MHz and SNR=24dB.	2	K2	CO1
12.	Define channel capacity.	2	K1	CO1
13.	How does CDMA differ from TDMA in 2G systems?	2	K2	CO2
14.	State cell splitting.	2	K1	CO2
15.	Discuss the working of Go-back-N ARQ.	2	K2	CO3
16.	What is cyclic code?	2	K1	CO3
17.	Mention the main advantages of Space Division Multiple Access?	2	K2	CO4
18.	Write the concept of Code Division Multiple Access (CDMA) with an example.	2	K1	CO4

19.	How does Wi-MAX support broadband access?		*2*	*K2*	*CO5*
20.	What is the function of the Visitor Location Register (VLR) in GSM?		*2*	*K1*	*CO5*
21.	Recall the purpose of the Association process in IEEE 802.11.		*2*	*K1*	*CO6*
22.	Tell how many slave devices can a master device communicate with in a piconet?		*2*	*K2*	*CO6*

PART - C (6 × 11 = 66 Marks)

Answer ALL Questions

23.	a)	Summarize the OSI model in detail with the functions of each layer.	*11*	*K2*	*CO1*
		OR			
	b)	Discuss the different switching techniques used in communication networks. Explain the working of Circuit Switching and Packet Switching with suitable diagrams and examples.	*11*	*K2*	*CO1*
24.	a)	Compare and contrast First, Second, and Third Generation (1G, 2G, and 3G) cellular systems.	*11*	*K2*	*CO2*
		OR			
	b)	Describe about ASK and FSK in detail.	*11*	*K2*	*CO2*
25.	a)	Explain the Direct sequence Spread spectrum with an example.	*11*	*K2*	*CO3*
		OR			
	b)	Show the three types of ARQ (Stop-and-Wait, Go-Back-N, and Selective Repeat). Explain their advantages and disadvantages.	*11*	*K2*	*CO3*
26.	a)	Describe the collision avoidance mechanism in wireless networks. How does RTS/CTS improve network efficiency?	*11*	*K2*	*CO4*
		OR			
	b)	Illustrate in detail about FDMA with a neat diagram.	*11*	*K2*	*CO4*
27.	a)	Show the GSM architecture in detail. Describe the functions of key GSM entities such as MSC, HLR, VLR, and BSC.	*11*	*K2*	*CO5*
		OR			
	b)	Compare Wireless Local Loop (WLL) and Wi-MAX. Discuss their advantages and disadvantages.	*11*	*K2*	*CO5*
28.	a)	Construct the RTS/CTS mechanism in IEEE 802.11. How does it prevent the hidden terminal problem?	*11*	*K3*	*CO6*
		OR			
	b)	Illustrate the Bluetooth Radio Specification in detail. Discuss frequency band, transmission power, and frequency hopping technique.	*11*	*K3*	*CO6*