B.Tech. DEGREE EXAMINATION, NOVEMBER 2023
Sixth & Seventh Semester

18CSE458T - WIRELESS AND MOBILE COMMUNICATION
(For the candidates admitted from the academic year 2020-2021 & 2021-2022)

Note:
(i) **Part - A** should be answered in OMR sheet within first 40 minutes and OMR sheet should be handed over to hall invigilator at the end of 40th minute.
(ii) **Part - B & Part - C** should be answered in answer booklet.

Time: 3 hours   Max. Marks: 100

PART – A (20 × 1 = 20 Marks)
Answer ALL Questions

		Marks	BL	CO	PO

1. From one or more system the data, programs and information are shared is known as — Marks 1, BL 1, CO 1, PO 1
   - (A) Flow control
   - (B) Communication
   - (C) Flow control and communication
   - (D) Neither flow control nor communication

2. If a user uses walkie talkie, he uses — Marks 1, BL 1, CO 1, PO 1
   - (A) Simplex communication
   - (B) Half-duplex communication
   - (C) Full-duplex communication
   - (D) Multiplexing

3. Which is not part in element of communication system? — Marks 1, BL 2, CO 1, PO 1
   - (A) Sending and receiving devices
   - (B) Communication channel
   - (C) Connecting devices
   - (D) EM spectrum

4. User A absorbs some unwanted signal in communicating wither user B. This is known as — Marks 1, BL 2, CO 1, PO 1
   - (A) Spectrum
   - (B) Noise
   - (C) Frequency
   - (D) Space

5. The transmitting tower in a cellular network is known as — Marks 1, BL 1, CO 2, PO 2
   - (A) Tower
   - (B) Base station
   - (C) PSTN
   - (D) Switching network

6. The brain behind the cellular system lies in — Marks 1, BL 2, CO 2, PO 2
   - (A) Mobile switching centre
   - (B) Public switches telephone network
   - (C) Multiple access method
   - (D) Multiplexing

7. Initiating a mobile service (voice communication) from mobile station to base station is known as — Marks 1, BL 2, CO 2, PO 2
   - (A) FVC
   - (B) RVC
   - (C) FCC
   - (D) RCC

8. Whenever a call to a mobile user has established the base station signals the mobile station to change over towards?   1   2   2   2
   (A) Unused forward voice channel and reverse voice channel
   (B) Unused forward control channel and reverse control channel
   (C) Unused forward control channel
   (D) Unused reverse control channel

9. Identify the technology to be used for transmitting mobile voice and data in digital cellular network.   1   2   3   3
   (A) Encoder
   (B) GPRS
   (C) 4G
   (D) Decoder

10. _____ is a 15 or 17 digit of a universally unique number for our mobile device in which the last digit is used for the checksum   1   2   3   3
    (A) SIM
    (B) IMSI
    (C) MSISDN
    (D) IMEI

11. Which unused channels of GPRS used for transforming the data in general?   1   1   3   3
    (A) Standalone dedicated control channel
    (B) Broadcast control channel
    (C) Traffic channel
    (D) Synchronization channel

12. If the telephone (cell phone) user moves from the area covered by one cell and approaches the area covered by another cell, the call is moved to second cell to avoid interruption of the call when the caller crosses the first cell is known as   1   2   4   4
    (A) Dropped calls
    (B) Call hold
    (C) Call block
    (D) Handover

13. If a base station receives a bad or unknown frames, the station uses _____ to report the bad frame.   1   2   4   4
    (A) Interframe
    (B) DIFS
    (C) EIFS
    (D) SIFS

14. The CP needs to be _____ to send packets such as _____.   1   1   4   4
    (A) Small, RTS/CTS
    (B) Large, RTS/CST/ACK
    (C) Large, CTS/ ACK/CFP
    (D) Large, RTS/CTS

15. A number which is used to differentiate newly transmitted frame and retransmission of the previous frame is known as _____.   1   1   5   5
    (A) Duration number
    (B) Channel number
    (C) Sequence number
    (D) Field number

16. In order to distinguish the association of RTS, CTS, ACK and data _____ is used.   1   1   5   5
    (A) Duration value
    (B) Frame control field type
    (C) To and from fields
    (D) WEP field

17. Suppose the value in the protocol field is 17 the transport layer protocol used is _____.   1   1   5   5
    (A) TCP
    (B) UDP
    (C) ICMP
    (D) IGMP

18. How does a DHCP server dynamically assign IP address to host?   1 2 5 5
    (A) Addresses are allocated after a (B) Addresses are assigned for a
        negotiation between the server   fixed period of time, at the end
        and the host to determine the   of period, a new guest for an
        length   address must be made
    (C) Addresses are assigned to host, a (D) Addresses are permanently
        host will usually keep the same   assigned so that the host uses
        addresses by periodically   the same address at all time
        contacting the DHCP server to
        renew the lease

19. Lina wants to send message to Lisa. For that Lina wants her communication   1 2 1 1
    system need to have no signal mixing and signal communication range need
    to be more. So Lina uses
    (A) Message signal only   (B) Carrier signal only
    (C) Modulated signal   (D) Either message signal or carrier
                                          signal

20. Maximum amplitude of the modulated wave is known as   1 1 1 1
    (A) $A_c + A_m$ (B) $A_c - A_m$
    (C) $A_c * A_m$ (D) A_c / A_m

PART – B (5 × 4 = 20 Marks)
Answer ANY FIVE Questions

	Marks	BL	CO	PO
21. Mention the significance of narrowband interference.	4	1	1	1
22. Compare FDMA with TDMA.	4	2	2	2
23. Compare GPRS with EDGE.	4	3	3	3
24. Wireless communication system capacity can be increased or not? Justify your answer.	4	4	2	2
25. Depict IP based Wimax network architecture.	4	2	3	1
26. Identify the advantages of 4G networks compared to previous 2G and 3G networks.	4	4	4	4
27. Specify how hidden terminal and exposed terminal problems are solved.	4	3	2	1

PART – C (5 × 12 = 60 Marks)
Answer ALL Questions

	Marks	BL	CO	PO
28. a. Describe the significance of spread spectrum techniques and explain any one spread spectrum technique with neat diagram.	12	2	2	1

(OR)

b. Discuss in detail about multiplexing concept and the different multiple access techniques. | 12 | 2 | 2 | 1

29. a. Specify the need of multiple access techniques. Describe any two multiple access techniques with examples. | 12 | 3 | 2 | 1

(OR)

b. Specify the various types of satellite orbits. Explain the characteristics of each satellite types according to its orbit location. | 12 | 3 | 2 | 1

30. a. With necessary diagrams explain the following with its advantages and disadvantages | | 3 | 4 | 1
   (i) Indirect TCP | 6
   (ii) Snooping TCP | 6

(OR)

b. Describe the following with necessary diagrams and explanation | | 3 | 3 | 1
   (i) WDP | 6
   (ii) WAP push architecture with proxy gateway | 6

31. a. Identify and explain with proper diagram the control logic for the frames and mention which protocol is used to access the communication channel and transfer the frames when the channel is idle, busy and collision occurs? | 12 | 3 | 4 | 4

(OR)

b. Identify which packet routing protocol is designed to be used in MANET? How many phases are available for routing? Explain any one phase in detail. | 12 | 3 | 4 | 4

32. a. Depict and explain in detail which technology is used to work without the staff realization for automatic identification of goods in enterprise application. | 12 | 3 | 5 | 5

(OR)

b. A technology is used to access the smallest type of small cell in cellular network within targeted geographic area. Describe that type of technology with proper advantages and disadvantages. | 12 | 3 | 5 | 5

* * * * *