

B.Tech. DEGREE EXAMINATION, MAY 2023

Seventh Semester

18ECO103T - MODERN WIRELESS COMMUNICATION SYSTEMS

(For the candidates admitted during the academic year 2018-2019 to 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 40 minutes.
- ii. **Part - B** and **Part - C** should be answered in answer booklet.

Time: 3 Hours

Max. Marks: 100

Part - A (20 × 1 Marks = 20 Marks)

Answer All Questions

		Marks	BL	CO
1. EDGE stands for _____		1	1	1
(A) Enhanced Downlink Global Evolution	(B) Efficient Downlink for GSM Evolution			
(C) Enhanced Data rates For Global Evolution	(D) Efficient Data rates For Global Enhancement			
2. 4G systems provide data rates of up to		1	1	1
(A) 30 kbps	(B) 2 Mbps			
(C) 384 kbps	(D) 100 Mbps			
3. Second generation mobile network is based on		1	1	1
(A) GSM	(B) AMPS			
(C) WIFI	(D) Bluetooth			
4. Digital signals are commonly referred to as _____ waves.		1	1	1
(A) Circle	(B) Square			
(C) Triangle	(D) Spike			
5. In TDM, slots are further divided into _____		1	1	2
(A) Seconds	(B) Frames			
(C) Packets	(D) Bits			
6. The shape of a cell designed to cover a geographical area is _____		1	1	2
(A) Square	(B) Polygon			
(C) Triangle	(D) Hexagon			
7. In _____ systems, resources are allocated on demand.		1	1	2
(A) Packet Switching	(B) Circuit Switching			
(C) Message Switching	(D) Line Switching			
8. The technique that makes possible the task of listening and talking in a communication system is called		1	1	2
(A) Simplexing	(B) Duplexing			
(C) Modulating	(D) Multiple access technique			
9. The temporary register to which the subscriber currently registers and with its vicinity, it covers the service area of the associated MSC is		1	1	3
(A) Home location register	(B) Temporary location register			
(C) Sim card register	(D) Visitor location register			
10. _____ manages the switching function in GSM.		1	1	3
(A) BSS	(B) NSS			
(C) OSS	(D) MSC			

11. The CDMA IS 95 is the _____ digital cellular network system (A) 3rd generation (B) 2.5 generation (C) 2nd generation (D) 1st generation	1	1	3
12. HSCSD supports which 2G standard? (A) GSM (B) IS-136 (C) GSM and IS-136 (D) PDC	1	1	3
13. What is the minimum spectrum allocation required by W-CDMA. (A) 5 MHz (B) 20 MHz (C) 1.25MHz (D) 200 kHz	1	1	4
14. MIMO technology makes advantage of a natural radio wave phenomenon called (A) Reflection (B) Multipath (C) Refraction (D) Diffraction	1	1	4
15. What is 3GPP? (A) Project based on W-CDMA (B) Project based on CDMA 2000 (C) Project based on 2G standards (D) Project based on 2.5G standards	1	1	4
16. The various air interface formats used by EDGE are also known as (A) Modulation and coding schemes (B) Coding schemes (C) Modulating air interface (D) Air interface delay	1	1	4
17. Mobile Security is also known as (A) OS Security (B) Wireless Security (C) Cloud Security (D) Database Security	1	1	5
18. _____ language assisted in creating pages delivering WAP Data? (A) Wireless Markup language (B) Wired Markup Language (C) Hyper text markup language (D) C language	1	1	5
19. Bluetooth transceiver devices operate in _____ band. (A) 2.4 GHz ISM (B) 2.5 GHz ISM (C) 2.6 GHz ISM (D) 2.7 GHz ISM	1	1	5
20. In which frequency range do the cordless phones mostly work? (A) 43-50 MHz (B) 88-108 MHz (C) 540-1600 KHz (D) 200-540 KHz	1	1	5

Part - B (5 × 4 Marks = 20 Marks)
Answer **any 5** Questions

21. Differentiate between analog and digital signals.	4	3	1
22. Write short notes on twisted-pair cable and coaxial cable in transmission media.	4	2	1
23. Write about the paging system in personal communication services.	4	2	2
24. Explain roaming services in the GPRS network.	4	2	3
25. Explain the applications of messaging in mobile data services.	4	2	4
26. Describe in brief Palm OS on a smartphone.	4	2	5
27. Write about the unlicensed spectrum in detail.	4	2	5

Part - C (5 × 12 Marks = 60 Marks)
Answer **All** Questions

28. a. With a neat sketch, explain the direct sequence spread spectrum and the frequency hopping spread spectrum. (OR) b. Explain the various cell phone generations with their technologies and standards in detail.	12	3	1
29. a. Explain circuit switching and packet switching in detail. (OR) b. Compare LAN, MAN, and WAN network in detail.	12	2	2
30. a. Explain the GSM architecture in personal communication services with a neat diagram. (OR) b. Explain in detail about the Digital Advanced Mobile Phone System in personal communication services.	12	2	3
31. a. With a neat diagram, explain the block diagram of OFDM systems. (OR) b. Explain in detail about the CDMA 2000 in third generation systems.	12	3	4
32. a. With a neat diagram, explain the Bluetooth protocol architecture in detail. (OR) b. In WAP explain the seven layers along with added security layer in detail.	12	2	5

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