

30. a. Explain Bluetooth technology and its protocol in detail.

10 3 5 12

(OR)

b. Explain the following

- (i) Future phones and applications
- (ii) Cordless technology

5 3 5 12  
5 3 5 12

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Reg. No.

**B.Tech. DEGREE EXAMINATION, NOVEMBER 2022**

Sixth and Seventh Semester

**18ECO103T -- MODERN WIRELESS COMMUNICATION SYSTEMS**

(For the candidates admitted from the academic year 2018-2019 to 2019-2020)

**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<sup>th</sup> minute.
- (ii) **Part - B** should be answered in answer booklet.

Time: 2½ Hours

Max. Marks: 75

**PART - A (25 × 1 = 25 Marks)**

Answer ALL Questions

- |   | Marks | BL | CO | PO |
|---|-------|----|----|----|
| 1. 4G systems provide data rates of upto<br>(A) 30 Kbps (B) 2 Mbps<br>(C) 384 Kbps (D) 100 Mbps   | 1     | 1  | 1  | 12 |
| 2. Digital signals are commonly referred to as _____ waves.<br>(A) Circle (B) Triangle<br>(C) Square (D) Spike  | 1     | 1  | 1  | 4  |
| 3. In radio wave the high frequency range between<br>(A) 3 Hz-300 kHz (B) 300 kHz – 30 MHz<br>(C) 30 MHz – 300 MHz (D) 300 MHz- 300 GHz                                     | 1     | 2  | 1  | 4  |
| 4. What is the set of possible carrier frequencies in FH-SS?<br>(A) Hopset (B) Hop<br>(C) Chips (D) Symbols   | 1     | 2  | 1  | 12 |
| 5. Transmission media are usually categorized as _____<br>(A) Fixed or unfixed (B) Guided or unguided<br>(C) Determinate or indeterminate (D) Metallic or non metallic      | 1     | 1  | 1  | 12 |
| 6. In TDM, slots are further divided into _____<br>(A) Seconds (B) Frames<br>(C) Packets (D) Bits   | 1     | 2  | 2  | 4  |
| 7. The shape of a cell designed to cover a geographical area is _____<br>(A) Square (B) Polygon<br>(C) Rectangle (D) Hexagon  | 1     | 1  | 2  | 12 |
| 8. In _____ systems, resources are allocated on demand.<br>(A) Packet switching (B) Circuit switching<br>(C) Message switching (D) Line switching                           | 1     | 1  | 2  | 12 |
| 9. Because of _____ transmissions in TDMA, the handoff process in<br>(A) Continuous, complex (B) Continuous, simple<br>(C) Discontinuous, complex (D) Discontinuous, simple | 1     | 2  | 2  | 4  |

10. ATM uses \_\_\_\_\_  
 (A) Asynchronous frequency division multiplexing (B) Asynchronous time division multiplexing  
 (C) Asynchronous space division multiplexing (D) Asynchronous amplitude division multiplexing
11. \_\_\_\_\_ manages the switching function in GSM.  
 (A) BSS (B) NSS  
 (C) OSS (D) MSC
12. The CDMA IS 95 is the \_\_\_\_\_ digital cellular network system.  
 (A) 3<sup>rd</sup> generation (B) 2.5 generation  
 (C) 2<sup>nd</sup> generation (D) 1<sup>st</sup> generation
13. HSCSD supports which 2G standard  
 (A) GSM (B) IS-136  
 (C) GSM and IS-136 (D) PDC
14. \_\_\_\_\_ supports the operation and maintenance of GSM.  
 (A) BSS (B) NSS  
 (C) OSS (D) MSC
15. User data in IS-95 is spread to a channel chip rate of \_\_\_\_\_  
 (A) 1.2288 Mchip/s (B) 9.6 Mchip/s  
 (C) 12.288 Mchip/s (D) 0.96 Mchip/s
16. 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 coding schemes
17. UMTS is also known as \_\_\_\_\_  
 (A) IS-95 (B) GPRS  
 (C) CDMA one (D) W-CDMA
18. Which networking standard was the first to use OFDM as a coding technique?  
 (A) 802.11 g (B) 802.11 a  
 (C) 802.11 n (D) 802.11 h
19. WiMAX provides \_\_\_\_\_  
 (A) VoIP services (B) IPTV services  
 (C) Both VoIP and IPTV services (D) No IPTV services
20. MIMO technology makes advantage of a natural radio wave phenomenon called \_\_\_\_\_  
 (A) Reflection (B) Multipath  
 (C) Refraction (D) Diffraction

21. \_\_\_\_\_ language assisted in creating pages delivering WAP data.  
 (A) Wireless markup language (B) Wired markup language  
 (C) Hyper text markup language (D) C language
22. Which of the following specifies a set of MAC and physical layer specifications for implementing WLANs?  
 (A) IEEE 802.16 (B) IEEE 802.3  
 (C) IEEE 802.11 (D) IEEE 802.15
23. An interconnected collection of piconet is called \_\_\_\_\_  
 (A) Scatternet (B) Micronet  
 (C) Mininet (D) Multinet
24. Which of the following is a protocol used for cordless telephone system?  
 (A) PACS (B) ERMES  
 (C) IS-95 (D) FLEX
25. 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

### PART – B (5 × 10 = 50 Marks)

Answer ALL Questions

26. a. With neat sketch explain direct sequence spread spectrum and frequency hopping spread spectrum. 10 3 1 12
- (OR)
- b.i. Explain time domain and frequency domain signaling concepts in detail. 8 4 1 4
- ii. What is meant by transmission media and mention its types. 2 3 1 12
27. a. Explain in detail about circuit switching and packet switching. 10 3 2 1
- (OR)
- b. With neat sketch explain the different types of multiple access technique. 10 4 2 4
28. a. With neat sketch explain the GPRS network architecture in detail. 10 3 3 12
- (OR)
- b. Explain in detail about the digital advanced mobile phone system in personal communication services. 10 4 3 4
29. a. Describe in brief about the service requirements in IMT-2000. 10 4 4 4
- (OR)
- b. Explain detail about the W-CDMA in third generation systems. 10 3 4 12