Sikkim Manipal University
Directorate of Distance Education

Model Question Piper

Subject Code: MT0038

Subject Name: Wireless Mobile Communication

Credits: 2 **Marks: 70**

Part A (One mark questions)

1. MTSO stands for ----------

A) Mobile Tower Server Office

B) Mobile Telephone Server office

C) Mobile Telephone Switching Office

D) None of the above

2. A Small divisions of a given geographical area is Known as ----------

A) Shell
B) Cell
C) core
D) Kernel

3. A Transceiver is a combination of ---------- and -------.

A) Transmitter and receiver

B)Cell and Mobile unit

C) Cell and MTSO

D) Transmitter and cell

4. _____ is a subscriber module which stores all the subscriber related information

A) ME

B) SIM

C) MS

D) BSS

5. _____ is the process of converting plaintext into ciphertext.

A) Authentication

B) Decryption

C) Compression

D) Encryption

6. _____and _____ are the administration tasks of the Network Management.

A) Traffic control , synchronization

B) congestion control , flow control

C) Subscriber management, Billing

D) Traffic control, minimizing error

7. CDPD stands for_____

A) Cellular Digital Packet Data

B) Cordless Device Packet Data

C) Cellular device Personal Data

D) Cordless Digital personal device

8. _____ was the first Time division Duplexing system for mobile radio communication.

A) CT-2

B) NFL

C) FSL

D) TCH/H

9. _____is a packet switching system which uses idle voice channel from the cellular system band to carry out traffic.

A) DSM

B) CDPD

C) CT-2

D) TDMA

10. In _____ frequency spectrum is divided into smaller spectra and is allocated to each user.

A) FDMA

B) TDMA

C) CDMA

D) SDMA

11. CDMA uses the idea of tolerating interference by _____

A) intelligent modulation

B) Spread spectrum modulation

C) manchester coding

D) Bipolar non return to zero coding

12. In FDMA---------- is asigned between the spectrum of two adjacent users.

A) interferance band

B) co-infer band

C) Guard band

D) inference band

13. _____ are geographical divisions of a given area which are considerably small compared to conventional cells.

A) Microcells

B) Minicells

C) Corecells

D) Biocells

14. Reducing the cell size to increase capacity is called as ----------

A) intelligent cell approach

B) Microcell approach

C) Top down approach

D) bottom up approach

15. Odyssey personal communications satellite system developed by TRW belongs to ---------- satellites.

A) LEO

B) ISO

C) MEO

D) CISCO

16. FDMA is used mainly for ---------- transmission

A) digital

B) analog

C) both analog and digital

D) neither A) nor B)

17. TDMA stands for ----------

A) Time data mobile access

B) Total disk multiple access

C) Time division multiple Access

D) Total data mainly access

18. Cell phones use two main battery technologies ---------- and ----------.

A) NiMH , Hi-LAY

B) Li-ion , Jin-Law

C) NiMH, Li-ion

D) Hi-Lay, Pi-Lay

19. An antenna which attempts to direct all its energy in a particular direction is called as a ----------.

A) star antenna

B) Horn antenna

C)Disc antenna

D) Directional antenna

20. The multiple access scheme in MIRS is ----------

A) FDMA

B) TDMA

C)CDMA

D) WDMA

Part B (Two mark questions)

21. There are ten users each occupying a bandwidth of 4 KHZ. If a guard band of 1 KHZ is to be assigned, determine the total bandwidth of these ten users?

A) 49 KHZ
B) 52 KHZ
C) 100 KHZ
D) 230 KHZ

22. Suppose each user in a cellular communication system is allocated 30 KHz of bandwidth. If the total band of frequencies allocated per cell is 40 MHz, determine the total number of users within that cell who can communicate simultaneously.

A) 556 (approximately)

B) 660 (approximately)

C) 666 (approximately)

D) 766 (approximately)

23. Three kinds of Physical channels are ----------

A) TCH/F, TCH/H, TCH/8
B) TCH/L, TCH/H, TCH/16
C) TCH/F, TCH/L, TCH/2
D) TCH/I, TCH/L, TCH/8

24. The stand Alone dedicated control channel uses ----------channel for passing user information.

A) TCH/F

B) TCH/H

C) TCH/L

D) TCH/8

25. Followings are the characteristics of PCN system.

i. Covers both small cells and large cells DHCPNACK
ii. Call delivery
iii. Portable hand set
iv. user intelligent network

A) I and iii only
B) ii, iii and iv only
C) i, ii, iii and iv
D) i and iv only

26. Digital European Cordless Telecommunication system uses ---------- type of modulation

A) GFSK

B) PCM

C) PWM

D) FSK

27. What is the up link and down link frequency of GSM?

A) Up link 935-960 MHz and Down link 890-915 MHz
B) Up link 900-950 and Down link 850-890 MHz
C) Up link 600-660 MHz and Down Link 550-590 MHz
D) Up link 650-710 MHz and Down Link 540-590 MHz

28. NA-TDMA system is approved and designed in 1987 by a group named ----------.

A) TR35-6

B) TR53-8

C) TR45-3

D) TR54-8

29. Stationary satellites are at an altitude of ---------- above the earth.

A) 30,000 KM

B) 38,000 KM
C) 34,500 KM
D) 36,800 KM

30. In future Dialing process can be replaced by ----------

A) Artificial intelligence

B) Voice activated technology

C) Idle voice channel

D) None of these

31. _____ phones allows the phone to utilize either a digital signal or if necessary an analog signal.

A) Duplex -mode
B) Bio-mode
C) Real-mode
D) Dual-mode

Part C (Four mark questions)

32. State true or false

i. The effective antenna height changes when the location of the mobile unit changes
ii. The absorption of radio waves by leaves of trees and other vegetation does not cause Foliage loss.
iii. The cell sites acts as an interface between the mobile unit and the MTSO.

A) true, true, false
B) true, false, true
C) false, true, true
D) false, true, false

33. State true or false

i. Handover does not occur when a voice channel changes as the mobile station enters another cell during a call

ii. Because of the precious value of the radio spectrum individual user cannot have their own TCH at all time.

iii. There are five kinds of physical channels.

A) true, true, true
B) false, false, false

C) true, false, true

D) false, true, false

34. Match the following

I.	PDC	1. 1989
II.	PCN	2. Packet switching stem
III.	PCS	3.1988
IV.	CDPD	4. 1994

A) I- 4 II-3 III-1 IV-2
B) I-3 II-4 III-2 IV-1
C) I-2 II-1 III-4 IV-3
D) 1-4 II-2 III-1 IV- 3

35. Match the following

I. FDMA	1. pseudo-noise sequence
II. CDMA	2. Guard Band
III. TDMA	3.ADC
IV. NA-TDMA	4. Time slots

A) I- 4 II-3 III-1 IV-2
B) I-3 II-4 III-2 IV-1
C) I-2 II-1 III-4 IV-3
D) 1-4 II-2 III-1 IV- 3

36. **State True or False**

i. Handoffs between satellite antenna spot beams and satellite may create for switching signals in space.

ii. Size of the battery is the limiting factor for long radio path communication.
iii. The existing PCs system in Indian markets are the smallest possible PCS system.

A) False, False, True
B) True, False, False
C) True, True, False
D) True, True, True

37. State true or false

i. CDMA technology is the basis for Interim Standard 95 and operates in both the 800 MHz and 1900MHz frequency bands.
ii. A phone that does not has dual band capability can switch frequencies
iii. Analog cell phones does not suffer from a problem known as cloning.

A) true, false, false
B) false, false, false
C) true, false, true
D) false, true, false

38. List down the tasks of OSS in a Digital Cellular system.

i. Network operation and maintenance.

ii. Synchronization

iii. Subscription management , including charging and billing

iv. Congestion control.

v. Mobile equipment management

A) i, ii, and iii only

B) ii, iii, and v only

C) ii and v only

D) i, iii and v only

Answer Keys

Part - A		Part - B		Part-C	
Q. No.	Ans. Key	Q. No.	Ans. Key	Q. No.	Ans. Key
1	C	21	A	32	B
2	B	22	C	33	D
3	A	23	A	34	A
4	B	24	D	35	C
5	D	25	C	36	C
6	C	26	A	37	A
7	A	27	A	38	D
8	A	28	C		
9	B	29	D		
10	A	30	B		
11	B	31	D		
12	C				
13	A				
14	B				
15	C				
16	B				
17	C				
18	C				
19	D				
20	B				