

Reg. No. :

Name :

Fifth Semester B.A./B.Sc./B.Com. Degree Examination, March 2023

First Degree Programme Under CBCSS

Double Main Programme – Electronics

Open Course

EX 1551.2 : INTRODUCTION TO MOBILE COMMUNICATION

(2020 Admission)

Time : 3 Hours

Max. Marks : 80

SECTION – A

Answer **all** questions. **Each** question carries **1** mark.

1. What are the limitations of conventional mobile telephone system?
2. In which frequency range do the cordless phones mostly work?
3. In a wireless communication, base station is connected to central hub called _____
4. The _____ is used for transmission of voice form base stations to mobiles.
5. What is a base station?
6. Umbrella cell approach is possible by using _____
 - (a) antenna of same heights
 - (b) antenna of different heights
 - (c) different voice channels
 - (d) different control channels

P.T.O.



7. What are the reasons for choosing Hexagonal shaped cells for mobile communications?
8. What is meant by dropped call?
9. _____ subsystem manages the switching functions in GSM.
10. What is a Mobile Identification Number (MIN)?

(10 × 1 = 10 Marks)

SECTION – B

Answer any **eight** questions. Each carries **2** marks.

11. What are the features of fourth generation wireless network?
12. What are the primary components of a mobile radio system?
13. Discuss the fundamental concepts of paging systems.
14. What is PSTN?
15. What are the advantages of wireless communication systems?
16. In a cellular network, among a handoff call and a new call, which one is given priority? Why?
17. If a total of 33 MHz of bandwidth is allocated to particular FDD cellular telephone system which uses two 25 KHz simplex channels to provide full duplex voice and control channels, compute the number of channels available per cell if a system uses seven cell reuse technique.
18. What are the factors influencing fading?
19. Differentiate between soft hand off and hard hand off
20. How does sectoring improves S/I in cellular systems?
21. What do you understand by dynamic cell splitting?



22. What are channel assignment strategies?
23. Discuss the impact of interference in a cellular system.
24. What is traffic routing in wireless networks?
25. What is the purpose of visitor location register in GSM network?
26. What is dwell time and why it is important?

(8 × 2 = 16 Marks)

SECTION – C

Answer any **six** questions. **Each** carries **4** marks.

27. Compare cordless telephony, paging system and cellular system
28. What are the key differences between second and third generation cellular systems?
29. Write a brief note on categories of operational channels in mobile communication system.
30. A city with a coverage area of 1500 sq. km is covered with a 12 – cell system each with a radius of 1.387 km. If the total spectrum allocated is 28.5 MHz with a full duplex channel bandwidth of 25MHz. Compute (a) the number of cells in service area and (b) the number of channels per cell.
31. Describe how repeaters can be used for range extension in cellular systems.
32. What is the principle of frequency reuse in the context of cellular network? Explain.
33. Explain the concept of micro cell zone with neat diagram.
34. What are the different types of switching methods? Explain in brief.
35. What is the relationship between capacity C of system and cluster size N? Discuss.



36. What is mobile switching center and what are its functions?
37. List and describe GSM services.
38. How are calls made from cell phone A to cell phone B? Explain briefly.

(6 × 4 = 24 Marks)

SECTION – D

Answer any **two** questions. **Each** question carries **15** marks.

39. Discuss the evolution of mobile radio communication system.
40. Explain the concepts of FDD and TDD techniques and compare them.
41. List and explain various methods to improve cell capacity.
42. With the aid of an illustration explain in detail GSM network architecture.
43. With relevant diagrams explain various radio transmission techniques.
44. What are the various handoff strategies based on algorithms of handoff? Explain in detail.

(2 × 15 = 30 Marks)

