G 981

Reg. No....................................

Name....................................

B.TECH. DEGREE EXAMINATION, MAY 2014

Eighth Semester

Branch : Electronics and Communication Engineering

EC 010 801 – WIRELESS COMMUNICATION (EC)

(New Scheme–2010 Admissions)

[Regular]

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.

Each question carries 3 marks.

1. List the methods to improve coverage and capacity in cellular systems.

2. What is small scale fading?

3. What are the spread spectrum techniques available for wireless communication?

4. List out three types of dedicated control channel in GSM.

5. What do you mean by soft hand off ?

(5 × 3 = 15 marks)

Part B

Answer all questions.

Each question carries 5 marks.

6. Explain cell sectoring techniques.

7. Derive the equation of the path loss using two-ray model with neat diagram.

8. Write a note on FHMA.

9. Draw and explain the frame structure for GSM.

10. Compare CDMA with GSM.

(5 × 5 = 25 marks)

Part C

Answer all questions.

Each full question carries 12 marks.

11. Discuss the basic operation of a cellular system. Explain its advantages and disadvantages.

Or

Turn over

12. (a) A cellular system has 32 cells. Each cell has 1.6 km radius and system reuse factor of 7. The system is to support 336 traffic channels in total. Determine the total geographical area covered, the number of traffic channels per cell and total number of simultaneous cells supported by this system.

    (b) Define Grade or service.

    (8 + 4 = 12 marks)

13. With a neat diagram, explain the free space propagation model. How the received, signal strength is predicted using free space propagation model?

Or

14. Derive the impulse response model of a multipath channel.

15. Explain Time Division Multiple Access (TDMA) in detail with its key features and comment on the efficiency of TDMA.

Or

16. Write a note on :

    (a) Spread spectrum multiple access.

    (b) ALOHA.

    (6 + 6 = 12 marks)

17. Explain GSM services and architecture.

Or

18. (a) What multiplexing schemes are used in GSM and for what purpose?

    (b) Explain various security services offered by GSM.

    (6 + 6 = 12 marks)

19. Explain different features of forward CDMA channels and reverse CDMA channels.

Or

20. Briefly explain DECT architecture. Compare the complexity of DECT with that of GSM.

[5 × 12 = 60 marks]