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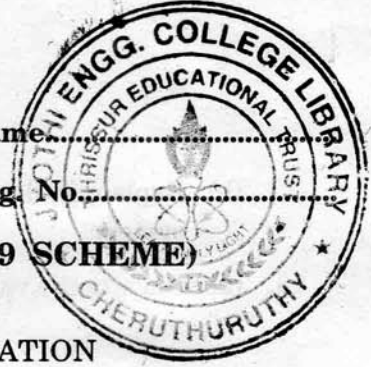
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Name:

Reg. No.

**EIGHTH SEMESTER B.TECH. (ENGINEERING) (09 SCHEME)
DEGREE EXAMINATION, APRIL 2015**

EC/PTEC 09 802—WIRELESS MOBILE COMMUNICATION



Time : Three Hours

Maximum : 70 Marks

Part A

Answer all questions.

1. Draw a model to illustrate the effect of hand off.
2. State Snell's law.
3. What is flat fading ?
4. What do you mean by frame efficiency in TDMA ?
5. List the major functional blocks of GSM system.

(5 × 2 = 10 marks)

Part B

Answer any four questions.

6. If a total of 33 MHz of bandwidth is allocated to a 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 :
 - (a) four-cell reuse ;
 - (b) seven-cell reuse ;
 - (c) 12-cell reuse.

If 1 MHz of the allocated system is dedicated to control channels, determine an equitable distribution of control channels and voice channels in each cell for each of the three systems.

7. Explain how do channel interference occur and how are they minimized.
8. Derive free-space path loss.
9. Discuss the principles of multiuser detection in CDMA.
10. Write short notes on doppler spectrum.
11. Discuss the various types of logical channels available in GSM network.

(4 × 5 = 20 marks)

Part C

Answer all questions.

12. (a) Draw the block diagram of a cellular system and explain how a cellular telephone call is made between the landline and the mobile user and when the call is initiated by the landline customer. Draw suitable timing diagrams.

Or

Turn over

- (b) Explain in detail the different techniques used to improve coverage and capacity of cellular system.

13. (a) Discuss the various parameters of mobile multipath channels.

Or

- (b) Explain the various diversity techniques in detail.

14. (a) Compare the techniques of TDMA, FDMA and CDMA in detail.

Or

- (b) (i) Explain the physical layer features of WCDMA systems. (5 marks)

- (ii) Explain the principles of frequency hopped spread spectrum technique. (5 marks)

15. (a) Explain the IMT-2000 standard with suitable structure.

Or

- (b) (i) Explain the concept of servicing frequency bands in GSM. (5 marks)

- (ii) Discuss the radio link features in GSM. (5 marks)

[4 × 10 = 40 marks]