[Total No. of Questions - 9] [Total No. of Printed Pages - 2] (2125)

15317

B. Tech 7th Semester Examination

Wireless and Mobile Communication (NS)

EC-414

Time : 3 Hours **Max. Marks : 100**

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt any one question in section A, B, C and D and all parts of section E.

SECTION - A

1. What are the issues and challenges of wireless networks? Explain them. (20)

2. (a) Explain in detail WPAN components and protocols. (10)

   (b) With an appropriate diagram, explain the OSI model. How does it relate to network communications? (10)

SECTION - B

3. (a) State and explain features of IEEE 802.11 (10)

   (b) Classify the routing protocols based on the routing topology in mobile ad-hoc networks. (10)

4. (a) Write the characteristics of wireless ad-hoc networks. (10)

   (b) What are the design goals of WLAN? (10)

SECTION - C

5. (a) If a signal to interference ratio of 15 dB is required for satisfactory forward channel performance of a cellular system, what is the frequency reuse factor and cluster size that should be used for maximum capacity if the path loss exponent is (a) n = 4, (b) n = 3?

[P.T.O.]

Assume that there are 6 co-channels cells in the first tier, and all of them are at the same distance from the mobile. Use suitable approximations. (10)

   (b) Explain in detail the different techniques used to improve coverage and capacity of cellular system. (10)

6. (a) Explain in detail the frame structure for GSM. (10)

   (b) Explain different GSM traffic and control signal bursts. (10)

SECTION - D

7. (a) Explain the working principle of RAKE Receiver. (10)

   (b) Describe the soft handoffs process in CDMA. (10)

8. (a) Compare the performance of TDMA, FDMA, CDMA and SDMA techniques. (10)

   (b) Explain in detail the concept of spread spectrum techniques and its type. (10)

SECTION - E

9. (i) Define Adhoc network. (2)

   (ii) What is the need for Network Security? (2)

   (iii) What are the key characteristics of Personal Area Network? (2)

   (iv) What is hopping sequence? (2)

   (v) Define wireless sensor network. (2)

   (vi) What do you mean by Home network and Home address? (2)

   (vii) Write short note on the following:

   - VANETS
   - WLAN vs WWAN
   - Trunking
   - Switching technologies. (2×4=8)