53 (CS 712) MOCO

2013

(December)

MOBILE COMPUTING

Paper : CS 712

Full Marks : 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

*Answer **any five** questions.*

1. *(a)* What are the limitations of wireless communications ? Why radio waves are mostly used in wireless communications ? 6+3=9

   (b) Explain the basic architecture of cellular communication. 5

   (c) Which types of different services does GSM offer ? Give some examples and reasons why these services have been separated. 3+3=6

2. *(a)* Explain the following control channels in GSM : 4+4=8

(i) BCCH

(ii) DCCH

(b) Show that the gross bit rate of TCH/F is $22 \cdot 8 kbps$. 3

(c) Describe the protocol architecture of GSM. 9

3. *(a)* What are the drawbacks of CSMA/CD ? Explain the following effects :

(i) Hidden and exposed terminal

(ii) Near and far terminal 3+7=10

(b) What do you mean by orthogonal codes ? Compare TDMA, FDMA and CDMA. 2+8=10

4. *(a)* Can we simply use the traditional TCP over a wireless link ? Justify your answer. 3

(b) Explain snooping TCP. What are its advantages and disadvantages ? 6+4=10

(c) What is database hoarding ? What are its advantages ? 5+2=7

5. (a) What do you mean by proactive and reactive protocols ? Compare them based on latency and overhead of route discovery in MANET. 2+3=5

(b) Explain the routing protocols DSR and AODV in MANET. 6+6=12

(c) Write the difference between Piconet and Scatternet. 3

6. (a) When mobile IP is needed ? Explain IP packet delivery to and from a mobile node. 2+6=8

(b) Why and where is encapsulation needed for mobile IP ? 4

(c) What is meant by tunneling ? Explain how tunneling works for mobile IP using IP-in-IP. Discuss the advantages and disadvantages of this method. 2+4+2=8

7. Write short notes on the following ***(any two)*** : 2×10=20

(i) NSS in GSM

(ii) DHCP in mobile network layer

(iii) Security in MANET

(iv) J2ME

(v) GSM TDMA Frame
