

AQ - 2702

Second Semester M. E. (Comp. Science and Engg.) Examination

MOBILE COMPUTING (Elective)

Paper - 2 RMEF 4 / 4 RME 2

P. Pages : 3

Time : Three Hours]

[Max. Marks : 80

- Note :** (1) Due credit will be given to neatness and adequate dimensions.
 (2) Assume suitable data wherever necessary.
 (3) Illustrate your answer wherever necessary with the help of neat sketches.
 (4) Use pen of Blue/Black ink/refill only for writing the answer book.

1. (a) Consider an antenna transmitting a power of 5 W at 900 MHz. Calculate the received power at a distance of 2Km if propagation is taking place in free space. 6
- (b) What is Doppler effect ? How can you compensate for the impact of Doppler effect in a cellular system ? Explain. 8

OR

2. (a) The transmission power is 40 W, under free space propagation model.
 - (i) What is transmission power in dBm ?
 - (ii) The receiver is in a distance of 1000m, what is the received power. Assuming that carrier frequency $f_c = 900$ MHz at $G_t = G_r = 1$ dB ?
 - (iii) Express the free space path loss in dB. 8
- (b) How is the radio propagation on land is different from that in free space ? Explain. 6
3. (a) Prove that the 'reuse distance' $D = R \sqrt{3N}$
 Where $R \rightarrow$ radius of each cell
 $N \rightarrow$ No. of cells in a cluster. 7
- (b) Explain cell capacity in terms of Erlang B and Erlang C with suitable example. 6

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OR

4. (a) Explain in detail fixed channel allocation (FCA) 6
(b) Explain co-channel interference mathematically. What are the techniques to reduce co channel interference. 7
5. (a) What are the steps involved in registration of MS ? Describe with suitable diagram. 6
(b) Explain the parameters influencing hand off. 7

OR

6. (a) Explain with block diagram GSM infrastructure with frequency bands and channels. 6
(b) What is meant by bidirectional tunneling ? Why do you need HA-FQ in-addition to HLR-VLR pair ? Explain clearly. 7
7. (a) Explain source initiated on demand routing in detail. 7
(b) Explain advantages and disadvantages of wireless sensor networks over wired sensor networks. 7

OR

8. (a) Explain Location Aided Routing Scheme with examples of expected zone. 7
(b) Explain routing. What are the goals for selecting routing protocol ? 7
9. (a) Explain in brief the Bluetooth core protocols with block diagram. 7
(b) What are the challenges for UWB technology ? 6

OR

10. (a) Describe in brief the specific MAC Layer detail for IEEE 802.11 standard. 7

- (b) What are the important requirements of wireless LAN ? 6
11. (a) How radio resources are managed efficiently for high speed multimedia communications ? 7
- (b) Explain in brief the basic function of smart antenna with neat sketch. 6

OR

12. (a) What are the challenges in the actual design of sensor networks ? 6
- (b) Can you do multicasting in a MANET ? If yes, how and if no, why not ? Explain clearly. 7



