

Name :

Roll No. :

Invigilator's Signature :

**CS / M.Tech (ME(CSE)/SE) / SEM-3 / PGCSE-301E /
PGSE-301E / PGCSE-302E / PGSE-302E / 2011-12**

2011

MOBILE COMPUTING

Time Allotted : 3 Hours

Full Marks : 70

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

Answer any *five* questions.

5 × 14 = 70

1. a) What is frequency reuse ?
- b) Explain the significance of frequency reuse distance. Calculate reuse distance for a seven cell cluster having radius 3 km ?
- c) What is fractional frequency reuse ?
- d) For a given path loss exponent (i) $n = 4$ and (ii) $n = 3$, find the frequency reuse factor and the cluster size that should be used for maximum capacity. The signal-to-interference ratio of 15 dB is minimum required for satisfactory forward channel cells in the first tier, and all of them are at the same distance from the mobile.

4 + 4 + 2 + 4

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2. a) What are the differences between GSM architecture and GPRS architecture ?

b) What kind of modulation is used in GSM ?

c) Comment on the scalability of VLR. 8 + 3 + 3

3. a) What are hard handoff and soft handoff ?

b) What are horizontal and vertical handoff ?

c) What are intra and inter system handoff ?

d) Explain the significance of cell breathing ?

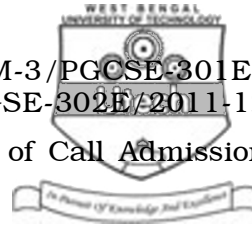
e) Calculate the cost of cell breathing technique for a seven cell clusters. 2 + 2 + 2 + 2 + 6

4. a) Write the comparisons between 1G, 2G, 3G and 4G mobile network.

b) What is mobile churning ?

c) What is call dropping ? How it can be minimized ?

d) Give the relation between call blocking, dropping and call completion probability. 4 + 2 + 2 + 6



5. a) Write down the performance criteria of Call Admission Control (CAC).

b) Write down the categories of CAC.

c) What are call queuing schemes ?

d) Write the classification of call queuing scheme ?

3 + 3 + 3 + 5

6. a) What is femto cell ?

b) How will a femto cell adapt to its surrounding environment and allocate spectrum in the presence of intra and cross tier interference ?

c) How will backhaul provide acceptable QoS in femto cell ?

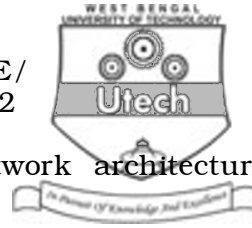
d) What is SON ? What are the different features of SON ?

e) Describe the self configuration procedure.

f) What are the different architectures of SON ?

2 + 3 + 3 + 2 + 2 + 2

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7. a) Write down the deployment of network architecture regarding femto cell handover.
- b) Explain the procedure of macro cell to femto cell handover.
- c) What are the reasons to interference in femto cell ?
- d) State the types of interference in brief. Point out the steps taken to solve the interference problem in femto cell.

3 + 3 + 3 + 5

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