

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 2155 Roll No. | | | | | | | | | | |

M.C.A.

(SEM. V) ODD SEMESTER THEORY EXAMINATION 2010-11

MOBILE COMPUTING

Time : 3 Hours *Total Marks : 100*

Note : (1) Attempt **all** questions.

(2) All questions carry equal marks.

(3) Be precise in your answer.

(4) No second answer book will be provided.

1. Attempt any **four** parts : **(5×4=20)**

(a) Discuss the architectural details of GSM. How is security implemented in GSM ?

(b) Discuss different channel allocation techniques used in cellular system.

(c) How is the security maintained in GSM with A3, A5 and A8 algorithm ? Explain with appropriate diagram.

(d) How do HLR–VLR help in managing the location of mobile ? Explain with necessary signaling sequence.

(e) How does CDMA allow each station to transmit over the entire frequency spectrum all the time ? Explain with suitable example.

(f) Distinguish between *High Speed Circuit Switched Data* (HSCSD) and *General Packet Radio Service* (GPRS) of GSM standard. What architectural additions need to be made in existing GSM to have support of GPRS ?

Attempt any **four** parts : **(5×4=20)**

(a) Distinguish between DCF and PCF in context to wireless LAN. Explain their coexistence in wireless LAN with appropriate diagram.

(b) Compare IEEE 802.11 and Bluetooth with regard to their adhoc capabilities. Where is the focus of these technologies ?

(c) Sketch a neat diagram showing the Bluetooth protocol stack. State the functions of the following layers :

(i) Radio Layer

(ii) Baseband Layer

(iii) L2CAP layer.

(d) Why does the wired TCP need modifications for its wireless implementations ? Discuss any one approach for making it adaptive to wireless scenario.

(e) Explain different components and interfaces of the WAP architecture with suitable diagram.

(f) How does IP address problem resolved in wireless internet ? Explain with suitable diagram.

3. Attempt any **two** parts : **(10×2=20)**

(a) Discuss the impact of mobile computing on the following aspects of data management :

(i) Transactions

(ii) Data Dissemination

(iii) Query Processing.

(b) Explain the concept of clustering and discuss the distributed clustering scheme/algorithm.

(c) How does mobility affect data replication when we consider replicating on mobile platform ? Discuss different possible replicating schemes when both client and server move only within their home location servers.

4. Attempt any **two** parts : **(10×2=20)**

(a) Differentiate between blocking and non–blocking mobile agent execution. Explain the concept of replication and check pointing type fault–tolerance schemes.

(b) What is mobile agent ? What are the benefits/good reasons for using mobile agents ? Discuss the classification of fault tolerance schemes for mobile agents.

(c) Discuss various issues related to transaction processing in mobile computing environment.

5. Attempt any **two** parts : **(10×2=20)**

(a) What is adhoc networks ? What are different MAC issues in adhoc networks and how are they addressed ?

(b) (i) Define the following and name a protocol of each category :

(a) Proactive protocols

(b) Reactive protocols

(c) Hybrid protocols.

(ii) Explain the destination sequenced distance vector routing (DSDV) protocol.

(c) Discuss the Ad hoc on Demand Distance vectors (AODV) routing protocols. How is it different than standard distance vector algorithm ?