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MCA
(SEM IV) THEORY EXAMINATION 2024-25
MOBILE COMPUTING

TIME: 3 HRS**M.MARKS: 100****Note:** Attempt all Sections. In case of any missing data; choose suitably.**SECTION A****1. Attempt all questions in brief.****2 x 10 = 20**

Q No.	Question	CO	Level
a.	What are the key challenges in mobile computing?	1	K1
b.	What are the two main types of logical channels in GSM?	1	K2
c.	What are the key MAC layer challenges in Wireless LANs	2	K1
d.	What are the key components of the WAP (Wireless Application Protocol) architecture?	2	K1
e.	How mobile file systems address Data consistency during intermittent connectivity?	3	K2
f.	Why is data replication important in mobile computing environments?	3	K2
g.	List four properties of transactions.	4	K1
h.	Explain eavesdropping attack against mobile agent in mobile computing	4	K2
i.	Explain Ad-hoc network.	5	K2
j.	What is Loop free routing?	5	K2

SECTION B**2. Attempt any three of the following:****10 x 3 = 30**

Q No.	Question	CO	Level
a.	What is location management in cellular systems? Explain HLR, VLR, and hierarchical location tracking.	1	K2
b.	What are Wireless multiple access protocols? Contrast FDMA and TDMA in details.	2	K2,K3
c.	What is adaptive clustering in mobile wireless networks, and how does it improve network performance?	3	K2,K3
d.	Explain the concept of mobile agents in distributed systems. How do mobile agents differ from traditional client-server models?	4	K2,K3
e.	Explain hidden and exposed terminal problems and their impact on performance of MANETs.	5	K2,K3

SECTION C**3. Attempt any one part of the following:****10 x 1 = 10**

Q No.	Question	CO	Level
a.	What is MAC in cellular systems? Contrast the how Medium Access Control works in GPRS and GSM.	1	K3
b.	Discuss handover schemes with suitable diagram in reference to: Intra-cell handover Inter-cell, intra-BSC handover Inter-BSC, intra-MSC handover Inter MSC handover:	1	K2,K3



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MOBILE COMPUTING

TIME: 3 HRS**M.MARKS: 100****4. Attempt any one part of the following:****10 x 1 = 10**

Q No.	Question	CO	Level
a.	Discuss I-TCP, and M-TCP with suitable diagram.	2	K2
b.	Compare and contrast Bluetooth and Wi-Fi in terms of range, applications, and performance.	2	K2

5. Attempt any one part of the following:**10 x 1 = 10**

Q No.	Question	CO	Level
a.	Explain the process of disconnected operations performed in CODA.	3	K2
b.	Identify and explain at least four major data management issues that arise specifically in mobile computing environments.	3	K1

6. Attempt any one part of the following:**10 x 1 = 10**

Q No.	Question	CO	Level
a.	What is the Malicious Host Problem? What are the countermeasures for Malicious Host Problem?	4	K2
b.	Define a mobile transaction. What are the challenges faced during Mobile Transactions?	4	K3

7. Attempt any one part of the following:**10 x 1 = 10**

Q No.	Question	CO	Level
a.	Explain the following MANET protocols: (i) DSDV (ii) TORA	5	K2
b.	Compare AODV routing protocol with DSR.	5	K2