R20

Code No: R20A0524

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

III B.Tech II Semester Supplementary Examinations, April 2025

Mobile Computing

(CSE-AIML)

Roll No										

Time: 3 hours **Max. Marks: 70**

Note: This question paper Consists of 5 Sections. Answer **FIVE** Questions, Choosing ONE Question from each SECTION and each Question carries 14 marks.

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			BCLL	CO(s)	Marks
		SECTION-I			
1	***A***	What are the key services provided by GSM (Global System for Mobile Communications)?	**L1**	**CO-I**	**[7M]**
	B	What are the primary components of a mobile device?	**L1**	**CO-I**	**[7M]**
		OR			
2	***A***	Design a new mobile application that could improve productivity for remote workers. What features would you include, and how would the app leverage mobile device capabilities?	**L6**	**CO-I**	**[7M]**
	B	Compare and contrast the circuit-switched and packet-switched services in GSM. What are the key differences in terms of efficiency and service quality?	**L4**	**CO-I**	**[7M]**
		SECTION-II			
3	***A***	What is route optimization in mobile computing, and why is it important for data transmission?	**L1**	**CO-II**	**[7M]**
	B	Explain how route optimization improves the efficiency of mobile networks and reduces latency in communication.	**L2**	**CO-II**	**[7M]**
		OR			
4	***A***	Analyse the key components of Mobile IP (such as home agent, foreign agent, and mobile node) and explain how they work together to support mobility in IP networks	**L4**	**CO-II**	**[7M]**
	B	Evaluate the strengths and weaknesses of Mobile IP compared to traditional IP in terms of latency, security, and performance during handoff between networks.	**L5**	**CO-II**	**[7M]**
		SECTION-III			
5	***A***	Explain how the Transmission Control Protocol (TCP) ensures reliable data transmission in mobile computing environments	**L2**	**CO-III**	**[7M]**
	B	How would you apply the TCP congestion control mechanism to improve network performance when a mobile device is connected to a crowded wireless network?	**L3**	**CO-III**	**[7M]**
		OR			
6	***A***	What is the concept of database hoarding and caching in mobile computing?	**L1**	**CO-III**	**[7M]**
	B	Analyse the pros and cons of using database caching versus	**L4**	**CO-III**	**[7M]**

		database hoarding in a mobile application with high user mobility and low network bandwidth. How do each of these techniques impact data consistency and resource utilization?			
		SECTION-IV			
7	***A***	Explain the difference between **unicast**, **broadcast**, and **multicast** data delivery mechanisms in mobile networks.	**L2**	**CO-IV**	**[7M]**
	B	Design a hybrid data delivery mechanism that combines the benefits of unicast and multicast for a mobile app that provides live event streaming. How would you ensure efficient delivery and handle network variability?	**L6**	**CO-IV**	**[7M]**
		OR			
8	***A***	What is data synchronization in mobile computing, and why is it important for mobile applications?	**L1**	**CO-IV**	**[7M]**
	B	If a user makes changes to their contact information on a mobile app while offline, how would data synchronization occur when the device reconnects to the internet?	**L3**	**CO-IV**	**[7M]**
		SECTION-V			
9	***A***	How would you apply routing algorithms in a MANET to ensure data transmission between mobile devices in a disaster recovery scenario where no fixed infrastructure is available?	**L3**	**CO-V**	**[7M]**
	B	Evaluate the security challenges in MANETs, such as packet sniffing and spoofing. Which security measures would be most effective in ensuring the integrity and confidentiality of data in a mobile ad-hoc network?	**L5**	**CO-V**	**[7M]**
		OR			
10	***A***	How would you apply Bluetooth technology to create a wireless file-sharing system between two mobile devices?	**L3**	**CO-V**	**[7M]**
	B	What is Bluetooth technology, and what are its primary uses in mobile computing?	**L1**	**CO-V**	**[7M]**

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