Reg. No.																

Question Paper Code	14620

M.E. / M.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2026

Second Semester

M.E. - Computer Science and Engineering (With Specialization in Networks)

24PCNEL209 - MOBILE AND PERVASIVE COMPUTING

Regulations - 2024

Duration: 3 Hours | Max. Marks: 100

PART – A (i) (MCQ)
(16 × 1 = 16 Marks)
Answer ALL Questions

		Marks	K – Level	CO
1.	Which technology is mainly used for short-range wireless communication? a) WiMAX b) Bluetooth c) 3G d) WATM	1	K1	CO1
2.	3G technology mainly improved: a) Voice only communication b) High-speed mobile internet access c) Wired communication d) Optical networking	1	K2	CO1
3.	Choose anyone from the following for WML scripts are mainly executed in: a) Desktop browser b) WAP browser c) Database server d) Operating system	1	K3	CO1
4.	CC/PP protocol is mainly used for: a) Device profile exchange b) Data encryption c) Voice communication d) Routing	1	K1	CO2
5.	Security in mobile computing mainly protects against: a) Data theft b) Hardware failure c) Low battery d) Screen damage	1	K2	CO2
6.	Identify to protect confidential mobile data, which feature is essential? a) Security mechanism b) Compression c) Scheduling d) Multiplexing	1	K3	CO2
7.	Mobility models describe: a) User movement patterns b)Hardware design c) Security attacks d) Database structure	1	K1	CO3
8.	Movement-based strategy updates location after: a) Fixed time b) Certain movements c) File transfer d) Password entry	1	K2	CO3
9.	Choose any one for the Cellular networks use location management mainly for: a) Efficient call routing b) Image processing c) Gaming d) Video editing	1	K3	CO3
10.	Context-aware systems mainly deal with: a) Data storage b) User environment and situation c) Network security d) Programming languages	1	K1	CO4

11.	Why is interaction transparency important in pervasive computing?		*1*	*K2*	*CO4*
	a) It increases system cost	b) It hides system complexity from users			
	c) It slows down processing	d) It reduces connectivity			
12.	Identify how are context communication and access services applied in pervasive computing?		*1*	*K3*	*CO4*
	a) To block data exchange	b) To enable efficient service delivery			
	c) To reduce connectivity	d) To avoid data sharing			
13.	What does SDP stand for?		*1*	*K1*	*CO5*
	a) Service Data Protocol	b) Service Discovery Protocol			
	c) System Development Process	d) Service Distribution Program			
14.	Identify to enable automatic configuration of devices in a home network, which protocol should be applied?		*1*	*K3*	*CO5*
	a) Jini	b) UPnP			
	c) TCP	d) DNS			
15.	What is the role of addressing in context-aware systems?		*1*	*K2*	*CO6*
	a) To identify and locate devices	b) To delete data			
	c) To block communication	d) To reduce processing			
16.	Choose anyone for in a healthcare system, sensors monitor patient vitals and alert doctors instantly. What is being applied?		*1*	*K3*	*CO6*
	a) Data backup	b) Context-aware sensor network			
	c) Manual monitoring	d) Delayed processing			

PART – A (ii) (Short Answer Questions)
(6 × 3 = 18 Marks)
Answer ALL Questions

17.	Apply the concept of 3G technology to support video calling in mobile devices.	*3*	*K3*	*CO1*
18.	Illustrate how the CC/PP exchange protocol is used to adapt content based on device capabilities.	*3*	*K3*	*CO2*
19.	Examine location management techniques in cellular networks and determine their efficiency in tracking mobile users.	*3*	*K4*	*CO3*
20.	Illustrate how context-aware techniques can be applied to improve interaction transparency in pervasive computing systems.	*3*	*K3*	*CO4*
21.	Analyze the process of data synchronization and determine its importance in maintaining consistency across mobile devices.	*3*	*K4*	*CO5*
22.	Inference the challenges and importance of context-aware security in protecting user data and privacy in mobile environments.	*3*	*K4*	*CO6*

PART - B (Descriptive Answer Questions)
(6 × 11 = 66 Marks)
Answer ALL Questions

23.	a)	Illustrate how Mobile IP protocols maintain communication when a mobile node moves between different networks.	*11*	*K3*	*CO1*
		OR			
	b)	Develop a WAP-based application using WML scripts to deliver dynamic content to mobile devices.	*11*	*K3*	*CO1*
24.	a)	Apply the architecture of mobile computing to design a system for real-time data access in a mobile environment.	*11*	*K3*	*CO2*
		OR			

	b)	Identify and explain how caching schemes and Coda file system for improve data management in mobile computing.	*11*	*K3*	*CO2*
25.	a)	Evaluate different handoff schemes in wireless mobile networks and justify the most efficient approach based on performance metrics and network conditions.	*11*	*K5*	*CO3*
		OR			
	b)	Compare and justify the suitability of different location management update strategies used in cellular networks.	*11*	*K5*	*CO3*
26.	a)	Build the concept of embedded systems and controls in designing a smart energy management system.	*11*	*K3*	*CO4*
		OR			
	b)	Illustrate the principles of Pervasive Computing to design a smart classroom system. Explain its components and working.	*11*	*K3*	*CO4*
27.	a)	Examine and compare service discovery technologies SDP, Jini, SLP, and UPnP in distributed environments.	*11*	*K4*	*CO5*
		OR			
	b)	Classify the major layers of the SyncML framework and explain their role in maintaining synchronized data.	*11*	*K4*	*CO5*
28.	a)	Evaluate the effectiveness of context-aware mobile services in improving user experience and system adaptability.	*11*	*K5*	*CO6*
		OR			
	b)	Compare and evaluate the performance of addressing schemes used in pervasive and context-aware computing environments.	*11*	*K5*	*CO6*