TOTAL PAGES : 2

23ITU523N

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2025
(Fifth Semester)

Branch - **INFORMATION TECHNOLOGY**

MAJOR ELECTIVE COURSE – I : MOBILE COMPUTING

Time: Three Hours Maximum: 75 Marks

SECTION-A (10 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** marks (10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	Name the component in mobile computing that is used to translate, transform, and mediate between client and server or between subsystems. a) Protocol b) Middleware c) Compiler d) Modem	K1	CO1
	2	Relate the layer responsible for business logic and data processing in a mobile computing architecture. a) Presentation b) Network c) Data d) Application	K2	CO4
2	3	What is the key component in supporting telephony in mobile computing? a) Voice XML b) TFTP c) SMTP d) FTP	K1	CO1
	4	Identify the frequency band in which Bluetooth typically operates. a) 900 MHz b) 2.4 GHz ISM c) 5 GHz d) 60 GHz	K2	CO4
3	5	Select the correct information that is stored in the Home Location Register. a) Temporary data about current connection only b) Permanent subscriber data and current location c) SMS messages only d) Billing records only	K1	CO1
	6	Identify how the band is divided for the GSM-900 frequency allocation. a) 100 uplink + 100 downlink channels b) 50 uplink + 50 downlink c) 512 downlink only d) 124 uplink + 124 downlink channels	K2	CO1
4	7	Recall what GPRS stands for. a) General Packet Radio Service b) General Public Radio Service c) General Packet Radio Service d) Global Packet Radio System	K1	CO4
	8	Identify what provides a framework for accessing internet content on resource-constrained mobile devices. a) WAP b) TCP c) UDP d) GPRS	K2	CO4
5	9	How is data freshness ensured to protect against replay attacks? a) Digital signatures b) Hashing only c) Nonces and timestamps d) Firewall filtering	K1	CO4
5	10	Illustrate which topology is commonly used in Wireless Sensor Networks (WSNs) to route data efficiently. a) Star topology only b) Fully connected mesh without hierarchy c) Hierarchical clustering or multi-hop routing d) Ring topology	K2	CO4

Cont...

SECTION - B (35 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Interpret the differences between a session-oriented dialogue and a short transaction in mobile systems, and give an example of each.	K2	C[illegible]
		(OR)		
	11.b.	Summarize the three tiers in the mobile computing architecture and their main responsibilities.		
2	12.a.	Identify and explain the key components and operation of RFID technology.	K3	CO3
		(OR)		
	12.b.	Construct short notes on how telephony applications utilize TAPI and the services it provides..		
3	13.a.	Model the SMS architecture and explain the role of the SMSC in the system.	K3	CO3
		(OR)		
	13.b.	Construct a detailed explanation of the process of call routing in GSM networks.		
4	14.a.	Compare GPRS transmission with GSM transmission, highlighting their key differences.	K4	CO2
		(OR)		
	14.b.	Analyze the MMS architecture by outlining its components and explaining the function of the MMS relay/server.		
5	15.a.	Inspect the advantages of Wireless LANs over wired LANs.	K4	CO4
		(OR)		
	15.b.	Survey the three fundamental components of information security and provide a brief description.		

SECTION -C (30 Marks)

Answer **ANY THREE** questions

ALL questions carry **EQUAL** Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Inspect the role and importance of middleware and gateways in mobile computing.	K4	CO5
2	17	Analyze the working of Bluetooth technology in detail.	K4	CO3
3	18	Classify the main subsystems of GSM architecture and briefly describe the function of each.	K4	CO3
4	19	Examine the features and applications of 3G wireless networks, highlighting how 3G improves upon earlier generations.	K4	CO2
5	20	Make an inference about the differences between symmetric and asymmetric encryption algorithms based on their characteristics and uses.	K4	CO4

Z-Z-Z END