

**B.E. / B.Tech. - DEGREE EXAMINATIONS, NOV / DEC 2025**

Fifth Semester

**Computer Science and Engineering**

(Common to Computer Science and Engineering (IoT))

**20CSPC503 - MOBILE COMPUTING**

Regulations – 2020

Duration: 3 Hours

Max. Marks: 100

**PART - A (MCQ) (10 × 1 = 10 Marks)**

Answer ALL Questions

- |   | <i>Marks</i> | <i>K-<br/>Level</i> | <i>CO</i> |
|---|--------------|---------------------|-----------|
| 1. What is the size of MAC address in medium access control sub layer?<br>(a) 48 bytes      (b) 48 bits      (c) 32 bits      (d) 32 bytes  | 1            | K1                  | CO1       |
| 2. Which type of multiplexing enables to use of the whole bandwidth simultaneously?<br>(a) FDMA      (b) CMDA      (c) TDMA      (d) None of the above  | 1            | K1                  | CO1       |
| 3. _____ stores the data related to the user and is relevant to GSM (Global System for Mobile communication) mobile systems as well.<br>(a) SIM (Subscriber Identity Module)      (b) CMR (Customer- Managed Relationship)<br>(c) VLR (Visitor Location Register)      (d) HMR (Header Manipulation Rule) | 1            | K1                  | CO2       |
| 4. GPRS uses the _____ architecture for voice.<br>(a) NSS      (b) CDMA      (c) GSM      (d) ESS   | 1            | K1                  | CO2       |
| 5. Mobile IP allows the mobile node to use two IP addresses called home address and _____<br>(a) Visitor Location Register(VLR)      (b) Virtual Address<br>(c) Care of address      (d) Temporary Address  | 1            | K1                  | CO3       |
| 6. Following are considered as characteristics of VANET.<br>(a) Static Topology      (b) Wired communication<br>(c) Fixed infrastructure      (d) Mobility Modelling and Prediction   | 1            | K1                  | CO3       |
| 7. Select the key feature of reactive routing protocols like DSR and AODV.<br>(a) They maintain a full routing table      (b) They establish routes only when needed<br>(c) They use link-state information      (d) They are based on position information   | 1            | K1                  | CO4       |
| 8. WAP is a _____ type of protocol.<br>(a) Circuit switching      (b) Packet switching      (c) Message switching      (d) Both a and b   | 1            | K1                  | CO4       |
| 9. The iOS SDK provides tools for developing apps for which platform?<br>(a) Apple devices      (b) Android devices      (c) Windows phones      (d) BlackBerry devices   | 1            | K1                  | CO5       |
| 10. One major disadvantage of mobile payment system is:<br>(a) Lack of speed      (b) Security and privacy concerns<br>(c) Lack of convenience      (d) Limited connectivity  | 1            | K1                  | CO6       |

**PART - B (12 × 2 = 24 Marks)**

Answer ALL Questions

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|--|---|----|-----|
| 11. Define Mobile Computing.   | 2 | K1 | CO1 |
| 12. Distinguish between Direct Sequence Spread Spectrum (DSSS) and Frequency Hopping Spread Spectrum (FHSS). | 2 | K2 | CO1 |
| 13. List the services provided by the Global System for Mobile communications (GSM).                         | 2 | K1 | CO2 |
| 14. Define Handover and give the types of basic classes of handovers in UMTS.                                | 2 | K1 | CO2 |
| 15. Infer the characteristics of 5G.   | 2 | K2 | CO3 |
| 16. Recall the role of Dynamic Source Routing (DSR) Protocol.  | 2 | K1 | CO3 |
| 17. Give the various layers available in Wireless Application protocol (WAP).                                | 2 | K1 | CO4 |

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| 18. Distinguish between Wireless Datagram Protocol (WDP) and Wireless Transport Layer Security (WTLS). | 2 | K2 | CO4 |
| 19. List any one application of WML in mobile browsers.  | 2 | K1 | CO5 |
| 20. Distinguish between HTML and WML.  | 2 | K2 | CO5 |
| 21. Compare any two features of android, symbian OS and Windows Phone 7.                               | 2 | K2 | CO6 |
| 22. Give any two examples for mobile operating system.   | 2 | K1 | CO6 |

**PART - C (6 × 11 = 66 Marks)**

Answer ALL Questions

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| 23. a) (i) Discuss the various generations of mobile computing. | 6 | K2 | CO1 |
| (ii) Explain Spread Spectrum in detail.                         | 5 | K2 | CO1 |

**OR**

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| b) Compare and contrast the SDMA, CDMA, TDMA and FDMA schemes based on its general characteristics. | 11 | K2 | CO1 |
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| 24. a) (i) Explain how the localization and calling done in Global System for Mobile Communications (GSM). | 7 | K2 | CO2 |
| (ii) Illustrate the way in which the security is provided in GSM for the customers.                        | 4 | K2 | CO2 |

**OR**

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| b) (i) Demonstrate about the protocol architecture of GPRS with a neat diagram.   | 7 | K2 | CO2 |
| (ii) Outline the functions of Home Location Register (HLR) and Visitor Location Register (VLR) in call routing and roaming. | 4 | K2 | CO2 |

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| 25. a) Analyze the three key mechanisms available in Mobile Internet Protocol (Mobile - IP). Explain how these mechanisms works with a suitable diagram. | 11 | K4 | CO3 |
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| b) Examine how UMTS achieves circuit-switched and packet-switched service integration with diagram. | 11 | K4 | CO3 |
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| 26. a) Apply the concept of M-TCP to mobile communication systems. Discuss the need for M-TCP with its major advantages and disadvantages. | 11 | K3 | CO4 |
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| b) Identify and discuss the working of DSDV routing in detail. State the advantages and disadvantages of DSDV. | 11 | K3 | CO4 |
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| 27. a) Inspect the functions of wireless datagram protocol (WDP) and draw the working flow architecture of WDP. | 11 | K4 | CO5 |
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| b) Discover the functions of WAE and WSP in WAP architecture and analyze how they support mobile applications. | 11 | K4 | CO5 |
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| 28. a) Compare the decline of BlackBerry and Windows Phone OS with the growth of Android and iOS, analyzing key ecosystem factors. | 11 | K2 | CO6 |
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| b) Explain in detail about mobile payment systems and list the various schemes of M-Payment that are currently used. | 11 | K2 | CO6 |
|--|----|----|-----|