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**Avinashilingam Institute for Home Science and Higher Education for Women**  
Deemed to be University Estd. u/s 3 of UGC Act 1956, Category 'A' by MHRD (now MoE)  
Re-accredited with 'A++' Grade by NAAC. CGPA 3.65/4, Category I by UGC  
Coimbatore - 641 043, Tamil Nadu, India

**Bachelor's Degree Examination – May 2025**  
**IV Semester**

**Class : II UG**

**Major : Computer Applications**

**Time: 3 Hours**

**Max. Marks: 100**

**23BCAC07 Computer Networks**

**Course Outcomes:**

- CO1:** Discuss the basic rudiments of networking concepts.  
**CO2:** Analyze in detail and understood the basic idea of different protocols.  
**CO3:** Analyze routing, packet switching and routing algorithms concepts.  
**CO4:** Recognize the services of connectionless and connection oriented protocols.  
**CO5:** Assess the internet domains and its services.

**Part A**

**10 x 1 = 10**

**Choose the Correct Answer**

1. Which layer of the OSI model is responsible for defining physical connections between devices?  
a. Transport Layer  
b. Data Link Layer  
c. Physical Layer  
d. Network Layer  
CO1 K1
2. Which of the following transmission media offers the highest data transmission speed?  
a. Twisted Pair Cable  
b. Coaxial Cable  
c. Fiber Optic Cable  
d. Radio Waves  
CO1 K2
3. Which of the following is NOT an error detection method?  
a. Parity Check  
b. Cyclic Redundancy Check (CRC)  
c. Checksum  
d. Flow Control  
CO2 K1
4. In the Go-Back-N ARQ protocol, what happens when an error is detected in a transmitted frame?  
a. Only the erroneous frame is re-transmitted  
b. The entire window of frames is re-transmitted  
c. The receiver corrects the error automatically  
d. The sender stops transmission  
CO2 K2
5. Which MAC protocol is used in Classic Ethernet (IEEE 802.3)?  
a. ALOHA  
b. CSMA/CD  
c. CSMA/CA  
d. TDMA  
CO3 K1
6. Which wireless communication technology operates in the 2.4 GHz ISM band and is used for short-range device communication?  
a. Wi-Fi  
b. Bluetooth  
c. RFID  
d. LTE  
CO3 K2
7. Which routing algorithm uses the Bellman-Ford algorithm to determine the shortest path?  
a. Link State Routing  
b. Distance Vector Routing  
c. Flooding  
d. Hierarchical Routing  
CO4 K1
8. Which of the following is a valid IPv6 address format?  
a. 192.168.1.1  
b. 2001:0db8:85a3::8a2e:0370:7334  
c. 255.255.255.0  
d. 172.16.0.1  
CO4 K2
9. Which transport layer protocol is connectionless and provides unreliable data transfer?  
a. TCP  
b. UDP  
c. ICMP  
d. SCTP  
CO5 K1
10. Which mechanism in TCP helps to control congestion by adjusting the sender's window size dynamically?  
a. Flow Control  
b. Sliding Window Protocol  
c. Congestion Control  
d. Checksum  
CO5 K2

**Part B**  
**Answer ALL questions**  
**Each answer should not exceed 400 words or two pages**

**5 x 6 = 30**

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|---|--------|
| 11.a. Analyse the Design issues for the TCP/IP layers?<br>(or)  | CO1 K2 |
| 11b. Classify the Transmission types.                           | CO1 K3 |
| 12. a. Describe about Simplex Stop-and -Wait protocol.<br>(or)  | CO2 K1 |
| 12.b. Narrate the Sliding Window Protocols? Explain.            | CO2 K2 |
| 13.a. Summarize about Channel Allocation problem.<br>(or)       | CO3 K1 |
| 13.b. Explain RFID with suitable example.                       | CO3 K3 |
| 14.a. State the Forward Packet Switching.<br>(or)               | CO4 K2 |
| 14.b. Develop about The IP Version 4 Protocol.                  | CO4 K3 |
| 15.a. Sketch the Services Provided to the Upper Layers.<br>(or) | CO5 K1 |
| 15.b. Produce the content about TCP Transmission Policies.      | CO5K2  |

**Part C**  
**Answer ALL questions**  
**Each answer should not exceed 800 words or four pages**

**5 x 12 = 60**

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| 16. a. Discuss on Guided transmission media with suitable examples.<br>(or)                    | CO1K1  |
| 16.b. Detail discussion about the Reference models: OSI?                                       | CO1K2  |
| 17. a. Explicate on the Error detection and correction with example.<br>(or)                   | CO2 K2 |
| 17.b. Discuss about Digital Modulation and Multiplexing and Go-Back-N protocol.                | CO2 K3 |
| 18.a. Examine the Static and Dynamic channel allocation in details.<br>(or)                    | CO3 K1 |
| 18.b. Summarize about MAC Sub-layer Protocols with example.                                    | CO3 K2 |
| 19.a. Elucidate Shortest Path Routing, Distance Vector Routing & Broadcast<br>Routing.<br>(or) | CO4 K1 |
| 19.b. Infer the Services Provided to the Network Layer in the Internet.                        | CO4 K3 |
| 20.a. Enumerate Elements of Transport Protocols.<br>(or)                                       | CO5 K1 |
| 20.b. Describe on Real time applications in Application layer.                                 | CO5 K2 |

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