BRAINWARE UNIVERSITY

Term End Examination 2023-2024
Programme – M.Sc.(ANCS)-2023
Course Name – Computer Networks
Course Code - MNCS102
(Semester I)

Full Marks : 60

Time : 2:30 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 15=15

1. Choose the correct alternative from the following :

(i) List one advantage of computer networks.

a) Scalability
b) Security
c) Complexity Reduction
d) Reliability

(ii) Name a component essential for connecting devices in a network.

a) Router
b) Cable
c) Printer
d) Refrigerator

(iii) State How is RIP typically configured on a router?

a) By using the "ip rip" command
b) Manually through the "rip" command
c) Through DHCP
d) Automatically through ARP

(iv) Identify the physical network topology where all devices connect to a central hub or switch.

a) Mesh
b) Star
c) Ring
d) Bus

(v) A disadvantage of computer networks related to security.

a) Scalability
b) Reliability
c) Vulnerability
d) Efficiency

(vi) Explain the process of route selection in RIP (Routing Information Protocol).

a) Routes are selected using the longest prefix match
b) Routes are selected using the highest metric
c) Routes are selected based on network topology
d) Routes are selected based on the shortest path

(vii) Elaborate on the component required for wireless networking.

a) Manages wireless connections
b) Directs data between networks
c) Transmits data within a network
d) Provides electrical power

(viii) Name the primary process in encapsulation?

a) Breaking down data into packets
b) Building data for transmission

c) Combining data from different sources   d) Encrypting data for security

(ix) State rhe type of switching is used in traditional telephone networks?

    a) Circuit switching   b) Packet switching

    c) Message switching   d) Cell switching

(x) Recall the abbreviation for a network that covers a large geographical area, often spanning cities or countries.

    a) LAN   b) MAN

    c) WAN   d) SAN

(xi) Identify the component that operates at the Data Link Layer (Layer 2) of the OSI model and makes forwarding decisions based on MAC addresses.

    a) Router   b) Modem

    c) Switch   d) Hub

(xii) Explain MPLS stand for in the context of networking?

    a) Multiprotocol Label Switching   b) Maximum Packet Loss and Storage

    c) Multi-layer Protocol Setup   d) Minimal Port Logging Service

(xiii) Identify the network type that typically covers a metropolitan area, connecting multiple LANs across a city.

    a) LAN   b) WAN

    c) MAN   d) SAN

(xiv) Identify the primary function of a Repeater.

    a) Filtering   b) Forwarding

    c) Regeneration   d) Routing

(xv) Explain the primary role of a Layer-2 Switch in terms of categorization.

    a) Data Link Layer   b) Network Layer

    c) Transport Layer   d) Application Layer

Group-B
(Short Answer Type Questions)

3 x 5=15

2. List and briefly explain four general components required for setting up a computer network.   (3)

3. Differentiate between CSMA/CD and CSMA/CA in terms of their application and purpose.   (3)

4. Explain the Token Ring network topology and how it functions.   (3)

5. Differentiate between a Brouter and a traditional Router, highlighting their key features and applications.   (3)

6. Elaborate the introduction to wireless networking, explaining its significance in modern connectivity and communication.   (3)

OR

Explain the IEEE 802.11 wireless standard, including its subtypes like Direct Sequence Spread Spectrum (DSSS) and Frequency Hopping Spread Spectrum (FHSS).   (3)

Group-C
(Long Answer Type Questions)

5 x 6=30

7. Explain the key components required for setting up a computer network.   (5)

8. Differentiate between LAN, WAN, and SAN networks. Provide examples of when each type is typically used.   (5)

9. Describe the function of SNMP (Simple Network Management Protocol) and its associated port number.   (5)

10. Explain the role of static routing and dynamic routing protocols in router configuration.   (5)

11. Explain the basics of VLANs and their purpose in network segmentation.   (5)

12. Discuss the purpose and operation of VTP (VLAN Trunking Protocol) and the different VTP modes.   (5)

OR

Explain the concept of SSID (Service Set Identifier) and its role in wireless network identification. (5)

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