BRAINWARE UNIVERSITY

Term End Examination 2024-2025
Programme – M.Sc.(ANCS)-2024
Course Name – Computer Networks
Course Code - MNC10101
(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) What does VPN stand for?
a) Virtual Personal Network b) Virtual Private Network
c) Virtual Public Network d) Visual Private Network

(ii) In a client-server network, identify the role of a client.
a) To provide services b) To request services
c) To store data d) To manage network traffic

(iii) Identify the protocol operating at the Transport Layer for reliable data transfer.
a) UDP b) IP
c) TCP d) HTTP

(iv) State the OSI layer responsible for data translation, encryption, and compression.
a) Session Layer b) Presentation Layer
c) Application Layer d) Transport Layer

(v) Select the protocol used for resolving domain names to IP addresses.
a) DNS b) DHCP
c) SMTP d) HTTP

(vi) Choose the component in a router that temporarily stores data and routing tables.
a) RAM b) CPU (Central Processing Unit)
c) ROM d) Flash memory

(vii) Identify the mode that allows configuration of global parameters on a router.
a) Global Configuration Mode b) User EXEC Mode
c) Privileged EXEC Mode d) Interface Configuration Mode

(viii) Choose the primary purpose of route summarization.
a) To implement load balancing b) To provide secure routing updates
c) To increase the number of routes d) To reduce the size of routing tables

(ix) Describe the function of a Designated Router (DR) in OSPF.

a) Provides load balancing
b) Connects OSPF areas
c) Ensures secure routing updates
d) Central point for OSPF routing updates on multiaccess networks

(x) Choose the purpose of using Access Control Lists (ACLs) in packet filtering.

a) Determines the best path for data packets
b) Controls traffic flow based on filtering rules
c) Uses IP addresses to identify devices and networks
d) Maintains routing tables

(xi) Select the function of a Bootstrap Loader in the router startup sequence.

a) Loads the Cisco IOS from Flash memory
b) Verifies hardware functionality
c) Initializes hardware and loads the bootstrap program
d) Activates interfaces

(xii) Choose the purpose of a trunk link in VLAN configurations.

a) Connect end devices to a specific VLAN
b) Carry traffic for multiple VLANs over a single link
c) Restrict VLAN traffic to a single switch
d) Manage VLAN membership based on MAC address

(xiii) Select the full form of FHSS.

a) Frequency Hopping Spread Spectrum
b) Fast Hopping Signal Spectrum
c) Frequency High Spread Signal
d) Fast High Spread Spectrum

(xiv) Choose the primary purpose of MAC address filtering in wireless networks.

a) To increase data transfer rates
b) To reduce signal interference
c) To enhance security by allowing specific devices
d) To improve network stability

(xv) Select one advantage of using IEEE 802.1Q over ISL.

a) Higher overhead
b) Proprietary to Cisco
c) Lower number of VLANs supported
d) Open standard promoting interoperability

Group-B

(Short Answer Type Questions) 3 x 5=15

2. Explain the difference between TCP and UDP. (3)
3. Describe the main components of a router. (3)
4. Show the router startup sequence with proper diagram. (3)
5. Illustrate the role of an access point (AP) in a wireless network. (3)
6. Distinguish between access links and trunk links in VLAN configurations. (3)

OR

Justify that VTP pruning improves network efficiency. (3)

Group-C

(Long Answer Type Questions) 5 x 6=30

7. Explain the advantages and disadvantages of different physical topologies. (5)
8. Describe the roles of ABR (Area Border Router) and ASBR (Autonomous System Border Router) in OSPF. (5)
9. Discuss the benefits and implementation of route summarization in EIGRP. (5)
10. Elaborate benefits of using VLANs in a network and their enhanced performance, security, and manageability. (5)
11. Determine the subnet, broadcast address, and valid host range for the following addresses: (5)
    1. 192.168.100.25/30 2. 192.168.100.37/28 3. 192.168.100.66/27
12. Explain the significance of the Network Layer in the OSI model. (5)

OR

Explain Classless Inter Domain Routing (CIDR) and its benefits. (5)

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