



BRAINWARE UNIVERSITY

Term End Examination 2019 – 20

Programme – Master of Science in Advanced Networking and Cyber Security

Course Name – Computer Network

Course Code – MNCS104

(Semester – 1)

Time allotted: 2 Hours 30 Minutes

Full Marks: 60

[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)

20 x 1 = 20

1. Answer any *twenty* from the following
 - (i) In the layer hierarchy as the data packet moves from the upper to the lower layers, headers are

| | |
|---------------|-------------|
| a. Added | b. Removed |
| c. Rearranged | d. Modified |
 - (ii) The _____ is the physical path over which a message travels

| | |
|-------------|-----------|
| a. Path | b. Medium |
| c. Protocol | d. Route |
 - (iii) Which of this is not a network edge device?

| | |
|------------|----------------|
| a. PC | b. Smartphones |
| c. Servers | d. Switch |
 - (iv) Network congestion occurs

| | |
|---|-----------------------------|
| a. in case of traffic overloading | b. when a system terminates |
| c. when connection between two nodes terminates | d. none of the mentioned |
 - (v) In computer network nodes are

| | |
|--|--------------------------------------|
| a. the computer that originates the data | b. the computer that routes the data |
| c. the computer that terminates the data | d. all of the mentioned |

- (vi) Bluetooth is an example of
- a. PAN
 - b. LAN
 - c. WAN
 - d. MAN
- (vii) Which one of the following extends a private network across public networks?
- a. local area network
 - b. virtual private network
 - c. enterprise private network
 - d. storage area network
- (viii) This layer is an addition to OSI model when compared with TCP IP model
- a. Application layer
 - b. Data Link layer
 - c. Presentation layer
 - d. Physical layer
- (ix) The functionalities of presentation layer includes
- a. Data compression
 - b. Data encryption
 - c. Data description
 - d. All of the mentioned
- (x) Which transmission media has the highest transmission speed in a network?
- a. coaxial cable
 - b. twisted pair cable
 - c. optical fiber
 - d. electrical cable
- (xi) Which one of the following task is not done by data link layer?
- a. framing
 - b. error control
 - c. flow control
 - d. channel coding
- (xii) Automatic repeat request error management mechanism is provided by
- a. LLC
 - b. MAC
 - c. NIC
 - d. none of the mentioned
- (xiii) When 2 or more bits in a data unit has been changed during the transmission, the error is called
- a. random error
 - b. burst error
 - c. inverted error
 - d. no error
- (xiv) Which one of the following is the random access protocol for channel access control?
- a. CSMA/CD
 - b. CSMA/CD
 - c. ALOHA
 - d. all of the mentioned
- (xv) The network layer protocol of internet is
- a. ethernet
 - b. IP
 - c. HTTP
 - d. TCP

- (xvi) ICMP is primarily used for
- a. error and diagnostic functions
 - b. addressing
 - c. addressing
 - d. none of the mentioned
- (xvii) Which one of the following is a transport layer protocol used in networking?
- a. TCP
 - b. UDP
 - c. IP
 - d. both a and b
- (xviii) Physical or logical arrangement of network is _____
- a. Topology
 - b. Routing
 - c. Networking
 - d. None of the mentioned
- (xix) In which topology there is a central controller or hub?
- a. Star
 - b. Mesh
 - c. Ring
 - d. Bus
- (xx) In classful addressing, a large part of available addresses are
- a. Organized
 - b. Blocked
 - c. Wasted
 - d. Communicated
- (xxi) The TTL field has value 10. How many routers (max) can process this datagram?
- a. 11
 - b. 5
 - c. 10
 - d. 1
- (xxii) In Unicast Routing, Dijkstra algorithm creates a shortest path tree from a
- a. Graph
 - b. Tree
 - c. Network
 - d. Link
- (xxiii) What is the maximum number of IP addresses that can be assigned to hosts on a local subnet that uses the 255.255.255.224 subnet mask?
- a. 14
 - b. 15
 - c. 16
 - d. 30
- (xxiv) The network address of 172.16.0.0/19 provides how many subnets and hosts?
- a. 7 subnets, 30 hosts each
 - b. 8 subnets, 8,190 hosts each
 - c. 8 subnets, 2,046 hosts each
 - d. 7 subnets, 2,046 hosts each
- (xxv) Which of the following is the broadcast address for a Class B network ID using the default subnetmask?
- a. 172.16.10.255
 - b. 255.255.255.255
 - c. 172.16.255.255
 - d. 172.255.255.255

Group – B

(Short Answer Type Questions)

4 x 5 = 20

Answer any *four* from the following

- | | | |
|----|--|---|
| 2. | Compare the advantage and disadvantages of Mesh and Star Topology. Construct a hybrid topology according to your choice. | 5 |
| 3. | Given the IP 192.168.5.40/28 as one of the member of a classless IP group, find out the first address, last address and total number of addresses in this group. | 5 |
| 4. | Create a form in HTML using Text Box, Drop-down List, Radio Button and Checkbox. | 5 |
| 5. | You need to subnet a network that has 5 subnets, each with at least 16 hosts. Which subnet mask would you use? | 5 |
| 6. | Discuss about the various types of Firewalls. | 5 |
| 7. | Show how 'Poll' and 'Select' Methods works in the context of controlled access. | 5 |

Group – C

(Long Answer Type Questions)

2 x 10 = 20

Answer any *two* from the following

- | | | |
|-----|--|---|
| 8. | (a) Differentiate between static and dynamic routing. | 5 |
| | (b) Discuss the basic working logic behind NAT ing. | 5 |
| 9. | (a) An IP network 192.168.130.0 is using the subnet mask 255.255.255.224. Determine the number of subnets, number of hosts in each subnet and find out the subnets to which the following hosts belong to : 192.168.130.10, 192.168.130.93, 192.168.130.222, 192.168.130.250. | 8 |
| | (b) Discuss the use of Private and Public IP. | 2 |
| 10. | (a) Discuss the roles of various fields of a TCP segment. | 6 |
| | (b) Differentiate between TCP and UDP. | 4 |
| 11. | (a) Define subnet. Why is it needed? | 2 |
| | (b) An organization is using an IP network 165.100.0.0 and needs 1000 subnets and 60 usable hosts in each subnet. Determine the subnet mask. Also determine the 1 st host address of the 4 th subnet and last host address of the 9 th subnet. | 8 |