



BRAINWARE UNIVERSITY

Term End Examination 2023

Programme – MCA-2022

Course Name – Data Communication & Computer Networks

Course Code - MCA204

(Semester II)

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) Identify in which transmission media the highest transmission speed in a network is found
- | | |
|------------------|-----------------------|
| a) coaxial cable | b) twisted pair cable |
| c) optical fibre | d) electrical cable |
- (ii) Name the topology requiring a central controller or hub
- | | |
|---------|---------|
| a) Mesh | b) star |
| c) ring | d) bus |
- (iii) Determine the layer in which Routers functions.
- | | |
|---------------------------|-----------------------------------|
| a) physical and data link | b) physical, datalink and network |
| c) data link and network | d) network and transport |
- (iv) Classify in Which of the following allows devices on one network to communicate with devices on another network.
- | | |
|----------------|------------|
| a) Multiplexer | b) Gateway |
| c) Switch | d) Modem |
- (v) In Ethernet when Manchester encoding is used, Calculated bit rate is
- | | |
|---------------------------|------------------------|
| a) Half the baud rates | b) Twice the baud rate |
| c) Same as the baud rated | d) none of these |
- (vi) Identify the switching system all the packets of a message follow the same channels of a path in
- | | |
|----------------------|----------------------|
| a) packet switching | b) circuit switching |
| c) message switching | d) virtual circuit |

- (vii) In the sliding window method of flow control, the sender window size is estimated when an ACK is received
 - a) Increase in
 - b) Decrease in
 - c) Doubles in
 - d) Remains its original
- (viii) A multistation access unit is most often used in _____ LAN. Choose the option.
 - a) An Ethernet
 - b) A Token Ring
 - c) An FDDI
 - d) An Ethernet and A Token Ring
- (ix) Categorize one of the following algorithm which is not used for congestion control.
 - a) traffic aware routing
 - b) admission control
 - c) load shedding
 - d) None of these
- (x) Categorize the correct option --ICMP is primarily used for
 - a) ethernet
 - b) internet protocol
 - c) hypertext transfer protocol
 - d) None of these
- (xi) Identify which physical layer concerns with
 - a) bit-by-bit delivery
 - b) process to process delivery
 - c) application to application delivery
 - d) None of these
- (xii) For n devices in a network and duplex mode transmission facility, recognize the number of cable links required for a mesh topology
 - a) n^2
 - b) $2n$
 - c) $n(n-1)/2$
 - d) $n(n-1)$
- (xiii) The transport layer is estimated to provide _____ delivery.
 - a) bit-to-signal transmission
 - b) bit Synchronization
 - c) process-to-process
 - d) hop-to-hop
- (xiv) Identify the dedicated physical layer devices
 - a) Hub & Switch
 - b) Hub & multiplexer
 - c) ATM switch & MUX
 - d) Repeater & Router
- (xv) Define advantage of layering
 - a) multi-vendor integration
 - b) data hiding & encapsulation
 - c) easy testing
 - d) all of these

Group-B

(Short Answer Type Questions)

3 x 5=15

- 2. Describe comparatively datalink layer and network layer (3)
- 3. Illustrate Stop and wait protocol in comparison to the ARQ (3)
- 4. Analyse the Leaky bucket algorithm (3)
- 5. Compare between the guided and unguided media (3)
- 6. Show the explanation of VPN. (3)

OR

Categorize the types of errors? (3)

Group-C

(Long Answer Type Questions)

5 x 6=30

- 7. Appraise Subnet Mask and its importance (5)
- 8. Distinguish between congestion control and flow control? (5)
- 9. Describe the various modes of communication (5)
- 10. Explain the utility of MAC sub layer. (5)

11. Compare OSI and TCP/IP reference model. (5)
12. Discuss the responsibilities of data link layer (5)

OR

For n devices, calculate the number of cable links required for a mesh, ring, bus and star topology. (5)
