



## BRAINWARE UNIVERSITY

Term End Examination 2024-2025

Programme – BCA-Hons-2023

Course Name – Computer Network

Course Code - BCA40202

( Semester IV )

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) Which of the following is a type of error in data transmission?
  - a) Single-bit error
  - b) Double-bit error
  - c) Burst error
  - d) All of the above
- (ii) What does ARQ stand for in Stop & Wait protocol?
  - a) Automatic Repeat Query
  - b) Automatic Request Query
  - c) Automatic Response Queue
  - d) Automatic Repeating Queue
- (iii) In Stop & Wait ARQ, what happens if the acknowledgment (ACK) is lost?
  - a) The sender retransmits after a timeout
  - b) The receiver sends a negative ACK
  - c) The transmission stops
  - d) A new connection is established
- (iv) Which multiple access protocol divides the channel into distinct time slots?
  - a) FDMA
  - b) TDMA
  - c) CDMA
  - d) CSMA
- (v) Which technique allows multiple users to share the same frequency band simultaneously?
  - a) FDMA
  - b) TDMA
  - c) CDMA
  - d) CSMA
- (vi) Why is bit stuffing required in data framing?
  - a) To ensure frame synchronization
  - b) To increase data rate
  - c) To reduce bandwidth usage
  - d) To compress data
- (vii) What is the function of a Frame Check Sequence (FCS) in a data frame?
  - a) To provide logical addressing for data packets
  - b) To manage the flow control of data packets
  - c) To determine the source and destination MAC addresses
  - d) To verify the integrity of the data by detecting errors during transmission
- (viii) Which of the following is channelization protocol?

- a) ALOHA  
c) CDMA
- (ix) What type of error detection does TCP use to ensure data integrity?  
a) Checksum  
c) CRC
- (x) Which device operates at the Data Link Layer and helps reduce collisions in Ethernet networks?  
a) Router  
c) Hub
- (xi) Choose the primary purpose of Hamming Code in data transmission.  
a) Multiplexing signals  
c) Encrypting data
- (xii) Choose the correct design of a frame using character stuffing.  
a) Insert a special character at the start and end  
c) Insert a parity bit at the end
- (xiii) Choose the correct IP address class for the address 192.168.1.1 .  
a) Class A  
c) Class C
- (xiv) Choose the loopback IP address in IPv4.  
a) 255.255.255.255  
c) 127.0.0.1
- (xv) Choose the correct default subnet mask for a Class A IPv4 address.  
a) 255.0.0.0  
c) 255.255.255.0
- b) Token-passing  
d) SMTP
- b) Parity Bit  
d) Hamming Code
- b) Switch  
d) Repeater
- b) Correcting single-bit errors  
d) Increasing bandwidth
- b) Insert an escape character before each special character  
d) Use a different encoding method
- b) Class B  
d) Class D
- b) 169.254.0.1  
d) 192.0.2.1
- b) 255.255.0.0  
d) 255.255.255.255

### Group-B

(Short Answer Type Questions)

3 x 5=15

2. Explain the Bit Stuffing mechanism in data communication with a suitable example. (3)
3. What is the Pure ALOHA system, and how does it work? (3)
4. Explain the concept of TDMA and its role in wireless networks. (3)
5. Explain the concept of FDMA and its role in wireless networks. (3)
6. Differentiate between a hub and a switch. (3)

OR

Explain the function of a repeater in a network.

(3)

### Group-C

(Long Answer Type Questions)

5 x 6=30

7. Explain the differences between classful and classless addressing with suitable diagrams. (5)
8. Define the World Wide Web (WWW) function, and what are its key components. (5)
9. Define firewalls and explain their types and applications in network security. (5)
10. Explain Framing in Data Link Layer. Differentiate between Character Stuffing and Bit Stuffing. (5)
11. Describe how does a hybrid topology differ from other network topologies. (5)
12. Describe Quality of Service (QoS) in networking. Explain any three QoS parameters. (5)

OR

How does HTTP work? Explain the request-response model.

(5)

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