BRAINWARE UNIVERSITY

Term End Examination 2024-2025
Programme – B.Tech.(CSE)-AIML-2021/B.Tech.(CSE)-AIML-2022
Course Name – Computer Networks
Course Code - PCC-CSM502
(Semester V)

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) Two devices are in observed to be in network if _____

    a) a process in one device is able to exchange information with a process in another device

    b) a process is running on both devices

    c) PIDs of the processes running of different devices are same

    d) a process is active and another is inactive

(ii) Select which of the following networks extends a private network across public networks?

    a) local area network

    b) virtual private network

    c) enterprise private network

    d) storage area network

(iii) Which of the following statements can be recognized with OSI model?

    a) A structured way to discuss and easier update system components

    b) One layer may duplicate lower layer functionality

    c) Functionality at one layer no way requires information from another layer

    d) It is an application specific network model

(iv) Illustrate Header of a frame generally contains _____. Predict the correct option.

    a) synchronization bytes

    b) addresses

    c) frame identifier

    d) all of the mentioned

(v) Determine in open-loop control, policies are applied to report _____

    a) Remove after congestion occurs

    b) Remove after sometime

    c) Prevent before congestion occurs

    d) Prevent before sending packets

(vi) In Pure ALOHA, determine when is a collision detected

    a) Whenever a station transmits

    b) Whenever a station successfully transmits

c) After a fixed time interval

d) Only when two stations transmit simultaneously

(vii) In CSMA/CD (Carrier Sense Multiple Access with Collision Detection), examine the action being taken if a collision is detected.

a) Both stations stop transmitting and retry later

b) One station continues transmitting while the other waits

c) Both stations continue transmitting without any changes

d) The stations switch to full-duplex mode

(viii) In classless addressing, there are no classes but addresses are still described in _____

a) Ips

b) Blocks

c) Codes

d) Sizes

(ix) Network addresses are describes as a very important concept of _____

a) Routing

b) Mask

c) IP Addressing

d) Classless Addressing

(x) IPv6 does not use _____ type of address. Select the correct answer.

a) broadcast

b) multicast

c) anycast

d) unicast

(xi) Select the statement(s)about IPv6 addresses are true?

a) Leading zeros are required

b) Two colons (::) are used to represent successive hexadecimal fields of zeros

c) Two colons (::) are used to separate fields

d) A single interface cannot have multiple IPv6 addresses of different types

(xii) In TCP, sending and receiving data is done as _____. Select the correct option.

a) Stream of bytes

b) Sequence of characters

c) Lines of data

d) Packets

(xiii) Select from the below of type of communication that is observed by TCP .

a) Full-duplex

b) Half-duplex

c) Semi-duplex

d) Byte by byte

(xiv) In segment header, express the field associated sequence number and acknowledgement number.

a) Byte number

b) Buffer number

c) Segment number

d) Acknowledgment

(xv) A client that wishes to connect to an open server tells its TCP that it needs to be connected to that particular server. The process is identified as _____.

a) Active open

b) Active close

c) Passive close

d) Passive open

Group-B
(Short Answer Type Questions)   3 x 5=15

2. Explain the concept of sliding window in the context of data communication. How does it improve network efficiency?   (3)

3. What is the significance of RIP (Routing Information Protocol) in routing within a network?   (3)

4. What are the different types of transmission media used in data communication? Provide examples of each.   (3)

5. Describe SCTP handle congestion for multiple streams are used.   (3)

6. Discuss the differences between Telnet and SSH in terms of security and authentication mechanisms. Provide examples of scenarios where one is preferred over the other.   (3)

OR

Describe the basic principles of cryptography and how it is utilized in securing data (3)
transmission over the Internet. Give examples of cryptographic algorithms commonly used for
this purpose.

Group-C
(Long Answer Type Questions)   5 x 6=30

7. Describe about a) TCP connection management. b) Avoidance of congestion in TCP   (5)
8. A data link layer protocol uses a sliding window with a sender window size of 8 frames. If the (5)
   sender has sent frames 1 to 10, and the acknowledgment for frame 4 is lost, calculate how
   many frames the sender will retransmit before it can proceed with new frames.
9. Classify the different transmission impairment in Data Communication   (5)
10. Explain Block Coding Scheme. Illustrate the error detection in Block Coding.   (5)
11. Describe the importance of switching and the different types of switching techniques. (5)
12. Distinguish User agent in a E-mail system focussing on the services and its types   (5)
                                   OR
Distinguish the header format and the data types of MIME   (5)

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