END SEMESTER MAKE UP EXAMINATIONS (Feb-2022) - QUESTION PAPER - PART A

COURSE CODE : CSE3152
COURSE NAME : Computer Networks
SEMESTER : V
DATE OF EXAM : 22/02/2022
DURATION : 45 + 3 minutes

Instructions for Students:
(1) ANSWER ALL THE QUESTIONS.
(2) EACH QUESTION CARRIES 1 MARK.
(3) YOU ARE INSTRUCTED TO INFORM THE INVIGILATOR AFTER SUBMISSION OF THIS FORM IN THE CHAT SECTION.

* Required

* This form will record your name, please fill your name.

1. Name *

2. Registration Number *

3. Section *

4. Class Roll No
*

5. Which of these is not applicable for IP protocol?
(1 Point)

- Offer reliable service
- Offer unreliable service
- Does not offer error reporting
- Connectionless

6. Which one of the following task is not done by data link layer?
(1 Point)

- flow control
- channel coding
- framing
- error control

7. When the sender and the receiver of an email are on different systems, we need only _____
(1 Point)

- One MTA
- Two UAs and one MTA
- Two UAs
- Two UAs and two MTAs

8. Which of the following are transport layer protocols used in networking?
(1 Point)

- TCP and UDP
- HTTP and FTP
- UDP and HTTP
- TCP and FTP

9. Consider an instance of TCP's Additive Increase Multiplicative Decrease (AIMD) algorithm where the window size at the start of the slow start phase is 2 MSS and the threshold at the start of the first transmission is 8 MSS. Assume that a timeout occurs during the fifth transmission. Find the congestion window size at the end of the tenth transmission
(1 Point)

- 8 MSS
- 7 MSS
- 12 MSS
- 14 MSS

10. To deliver a message to the correct application program running on a host, the _____ address must be consulted.
(1 Point)

- MAC
- Name
- Port
- IP

11. The transport layer protocols used for real time multimedia, file transfer, DNS and email, respectively are:
(1 Point)

- TCP, UDP, UDP and TCP
- UDP, TCP, UDP and TCP
- TCP, UDP, TCP and UDP
- UDP, TCP, TCP and UDP

12. A generator that contains a factor of ____ can detect all odd-numbered errors.
(1 Point)

- x
- x+n
- x + 1
- 1

13. Which sublayer of the data link layer performs data link functions that depend upon the type of medium?
(1 Point)

- logical link control sublayer
- network interface control sublayer
- error control sublayer
- media access control sublayer

14. If there are N routers from source to destination, the total end to end delay in sending packet P(L-> number of bits in the packet R-> transmission rate) is equal to _____
(1 Point)

- L/R
- (2N*L)/R
- (N*L)/R
- N

15. A network with CSMA/CD protocol in the MAC layer is running at 1 Gbps over a 1 km cable with no repeaters. The signal speed in the cable is 2 x 108 m/sec. The minimum frame size for this network should be
(1 Point)

- 10000 bits
- 5000 bits
- 5000 bytes
- 10000 bytes

16. Which of the following is not a phase of virtual circuit network?
(1 Point)

- Setup phase
- Termination phase
- Teardown phase
- Data transfer phase

17. Which is the correct expression for the length of UDP datagram?
(1 Point)

- UDP length = UDP length – UDP header's length
- UDP length = IP length + IP header's length
- UDP length = UDP length + UDP header's length
- UDP length = IP length – IP header's length

18. Routers forward a packet using forwarding table entries. The network address of incoming packet may match multiple entries. How routers resolve this?
(1 Point)

- Forward the packet to all routers whose network addresses match.
- Discard the packet.
- Forward it the router whose entry matches with the longest prefix of incoming packet
- Forward it the router whose entry matches with the longest suffix of incoming packet

19. _____ is a multiple-access method in which the available bandwidth of a link is shared in time, frequency, or through code, between different stations.
(1 Point)

- Partition acess
- Random access
- Controlled access
- Channelization

20. If syn = 0 and ack = 1, it indicates
(1 Point)

- Error packet
- Data packet
- Open connection ack
- Open connection packet

21. As the resources are reserved between two communicating end systems in circuit switching, _____ is achieved.
(1 Point)

- guaranteed constant rate
- store and forward
- authentication
- reliability

22. How does a DHCP server dynamically assign IP address to host?
(1 Point)

- Addresses are assigned for a fixed period of time. At the end of period, a new quest for an address must be made, and another address is then assigned.
- Addresses are leased to host. A host will usually keep the same address by periodically contacting the DHCP sever to renew the lease.
- Addresses are permanently assigned so that the host uses the same address at all times.
- Addresses are allocated after a negotiation between the server and the host to determine the length of the agreement.

23. If a server has no clue about where to find the address for a hostname then _____
(1 Point)

- server asks to the root server
- server asks to its adjacent server
- request is not processed
- request is aborted

24. Suppose that the maximum transmit window size for a TCP connection is 12000 bytes. Each packet consists of 2000 bytes. At some point of time, the connection is in slow-start phase with a current transmit window of 4000 bytes. Subsequently, the transmitter receives two acknowledgements. Assume that no packets are lost and there are no time-outs. What is the maximum possible value of the current transmit window?
(1 Point)

- 8000 bytes
- 10000 bytes
- 12000 bytes
- 4000 bytes

25. In the slow-start algorithm, the size of the congestion window increases _____ until it reaches a threshold.
(1 Point)

- additively
- multiplicatively
- exponentially
- suddenly

26. Suppose a TCP connection is transferring a file of 1000 bytes. The first byte is numbered 10001. What is the sequence number of the segment if all data is sent in only one segment?
(1 Point)

- 11001
- 10001
- 10000
- 11000

27. Beyond IP, UDP provides additional services such as _____
(1 Point)

- Multiplexing and demultiplexing
- Routing and switching
- Demultiplexing and error checking
- Sending and receiving of packets

28. RIP is based on ---------- algorithm that uses ----- as cost metric.
(1 Point)

- Dijkstra's shortest path, hop count
- Distance-Vector , hop count
- Distance-Vector , propagation delay

29. The first line of HTTP request message is called _____
(1 Point)

- Header line
- Status line
- Entity line
- Request line

30. In Go-Back-N window, when the timer of the packet times out, several packets have to be resent even some may have arrived safe. Whereas in Selective Repeat window, the sender resends _____
(1 Point)

- Only those packets which are lost or corrupted
- Packet which are not lost
- Packet from starting
- All the packets

31. The address of a class B host is to be split into subnets with a 6-bit subnet number. What is the maximum number of subnets and the maximum number of hosts in each subnet?
(1 Point)

- 62 subnets and 262142 hosts.
- 64 subnets and 262142 hosts.
- 64 subnets and 1024 hosts
- 62 subnets and 1022 hosts.

32. A supernet has a first address of 205.16.32.0 and a supernet mask of 255.255.248.0. A router receives 4 packets with the following destination addresses. Which packet belongs to this supernet?
(1 Point)

- 205.16.31.10
- 205.16.39.44
- 205.17.32.76
- 205.16.42.56

33. To achieve reliable transport in TCP, _____ is used to check the safe and sound arrival of data.
(1 Point)

- Segment
- Packet
- Acknowledgment
- Buffer

34. How many types of message formats are there in HTTP protocol? (1 Point)

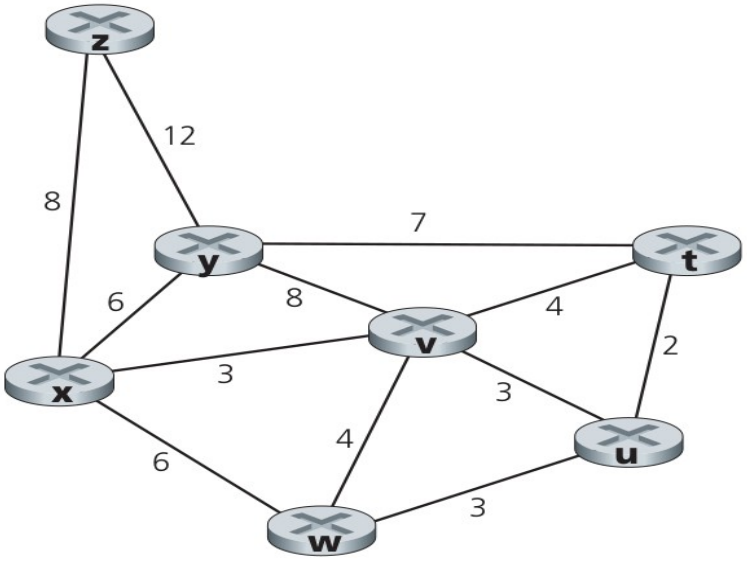
- 2 types
- 5 types
- 3 types
- 4 types

Department of Computer Science & Engineering
Sem-V
Computer Networks
CSE3152
Online -Makeup(Feb-2022)

Part B(20M)

Scheme

Q. No	Question	Marks
1A	Host ***cse.manipal.edu*** asks ***dns1.manipal.edu*** to resolve the hostname ***omnisecu.com***. Assume there are no cached entries relevant to this request. Write down the steps taken to resolve ***omnisecu.com*** and respond to ***cse.manipal.edu*** with diagram.	2M
1B	Both UDP and TCP use port numbers to identify the destination entity when delivering a message. Give two reasons for why these protocols invented a new abstract ID (port numbers), instead of using process Ids, which already existed when these protocols were designed. Now, Suppose a process in Host C has a UDP socket with port number 6789. Suppose both Host A and Host B each send a UDP segment to Host C with destination port number 6789. Will both of these segments be directed to the same socket at Host C? If so, how will the process at Host C know that these two segments originated from two different hosts?	3M
1C	Describe the connection establishment procedure in TCP with diagram. Consider, a hosts A and B are communicating over a TCP connection, and Host B has already received from A all the bytes up through byte 126. Suppose Host A then sends two segments to Host B back-to-back. The first and second segments contain 80 and 40 bytes of data respectively. In the first segment, the sequence number is 127, the source port number is 302, and the destination port number is 80. Host B sends an acknowledgment whenever it receives a segment from Host A. (a) In the second segment sent from Host A to B, what are the sequence number, source port number, and destination port number? (b) If the first segment arrives before the second segment, in the acknowledgment of the first arriving segments, what is the ACK number, the source port number. and the destination port number?	5M
2A	In a CRC based error detection system the code word received is 1000110and the generator polynomial used at the sender is 1011. Check whether any transmission error occurred or not during transmission**.**	2M
2B	Explain the importance of ARP in networking. Why is an ARP query sent within a broadcast frame? Why is an ARP response sent within a frame with a specific destination MAC address?	3M
2C	Consider the following network. With the indicated link costs, use Dijkstra's shortest-path algorithm to compute the shortest path from x to all network nodes. Show how the algorithm works by computing a necessary table.	5M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