

Roll No. ✓18271031

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CBC-1950-U
M.C.A. Third Semester
(End Semester)
Examination, Dec.-2019
COMPUTER SCIENCE AND
APPLICATION

Paper : CSA-CC-321
(Computer Organization)
Data Communication Network

Time : Three Hours]

[Maximum Marks : 60

Note :- The question paper is divided into **three** sections. Attempt questions as per direction.

[P. T. O.

SECTION - A**(Objective Type Questions)** 1×10=10**Note :-** Choose the correct answer.

1. Multipoint topology is :
- ← (a) Bus
 - (b) Star
 - (c) Mesh
 - (d) Ring
- (2) The physical layer translates logical communication requests from the into hardware specific operations :
- (a) Application layer
 - (b) Data link layer
 - (c) Network layer
 - (d) Transport layer
- (3) Automatic repeat request error management mechanism is provided by :
- (a) Logical link control sublayer
 - (b) Media access control sublayer

- (c) Network interface control sublayer
 - (d) None of the mentioned
- (4) Multidestination routing :
- (a) Is same as broadcast routing
 - (b) Contains the list of all destinations
 - (c) Data is not sent by packets
 - (d) None of the mentioned
- (5) An ATM cell has the payload field of :
- (a) 32 bytes
 - (b) 48 bytes
 - (c) 64 bytes
 - (d) 128 bytes
- (6) Frame relay has error detection at the :
- (a) Physical layer
 - (b) Data link layer
 - (c) Network layer
 - (d) Transport layer

- (7) Transport layer protocols deals with :
- (a) Application to application communication
 - (b) Process to process communication
 - (c) Node to node communication
 - (d) Both (a) and (b)
- (8) 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, tries to send :
- (a) Packet that have not lost
 - (b) Packet from starting
 - (c) Packet that have lost or corrupted
 - (d) All the packets
- (9) The technique in which a congested node stops receiving data from the immediate upstream node or nodes is called as :
- (a) Admission policy

- (b) Backpressure
 - (c) Forward signalling
 - (d) Backward signling
- (10) The DHCP server can provide the of the IP addresses :
- (a) Dynamic allocation
 - (b) Automatic allocation
 - (c) Static allocation
 - (d) All of the metioned

SECTION - B

(Short Answer Type Questions) 4×5=20

Note :- Attempt any **four** questions. Each question carries **five** marks.

- ① Define switched network. Explain the phases of circuit switching in data communication.
- ② Drive the equation for channel utilization in sliding window protocol. $u = \frac{2}{1+2\alpha}$

3. Define Ethernet. Explain the addressing mechanism and frame format in Ethernet.
4. Describe the design issues of data link layer in OSI model.
5. An IPv4 datagram has arrived with the following information in the header (in hexadecimal)—
- 0x 45 00 00 54 00 03 58 50 20 06 00 00 7C
4E 03 02 B4 0E 0F 02
- Is the packet corrupted ?
 - Are there any options ?
 - Is the packet fragmented ?
 - What is the size of the data ?
 - How many more routers can the packet travel to ?
 - What is the identification number of the packet ?
 - What is the type of service ?
6. What are the different categories of Internet Audio/Vedio Services ?

SECTION - C

(Long Answer Type Questions) $3 \times 10 = 30$

Note :- Attempt any **three** questions. Each question carries **ten** marks.

- How do ARQ and HDLC protocol perform flow control. Explain briefly.
- Discuss the functions of connecting devices used in different layers of OSI model.
- Discuss the design issues of network layer. Differentiate between distance vector routing and link state routing with suitable example.
- An organization is granted the block 16.0.0.0/8. The administrator wants to create 500 fixed-length subnets.
 - Find the subnet mask.
 - Find the number of addresses in each subnet.
 - Find the first and last addresses in subnet 1.
 - Find the first and last addresses in subnet 500.

5 Write the short notes on any two of the following—

- (a) Bluetooth
- (b) ISDN
- (c) ARP
- (d) Domain name system

Circuit Star
Data Transfer
Break.