# CHRIST (DEEMED TO BE UNIVERSITY), Bengaluru - 560029

End Trimester Examination May - 2022

Master of Computer Applications III TRIMESTER

Code: MCA331 Max.Marks: 100 Duration: 3Hrs Course: COMPUTER NETWORKS

# **SECTION A**

5X20=100

# Answer all the questions.

1 a) Describe the purpose of LAN, MAN, and WAN in networks with a (10)suitable diagram.

# [OR]

- b) Discuss the switching mechanism used in Message Switching with a (10)2 suitable diagram.
- a) Elaborate on the features of Internet layer and Transport layer 3 (10)in TCP/IP reference model with a suitable diagram.

- b) What are the steps followed in the Time Division Multiplexing (10)4 (TDM) for effective time management? Give an example.
- a) Assume, the following bits are sent from the sender's side to the (10) 5 receiver's side in the network. As a network analyst, perform a CRC error detection scheme for the following:
  - a) Calculate the actual data that is to be transmitted by the Sender.

Sender's data: 100100, Divisor: 1101

b) Check the data accuracy if the Receiver has received the 100100001 bits.

# [OR]

- b) Discuss various standards of the IEEE 802.11 Project in computer (10) 6
- a) Describe the error correcting mechanism used in the Hamming Codes (10) 7 model with an appropriate example.

## [OR]

- 8 b) Describe the solution proposed in the Binary Countdown protocol (10)to decide the priority of the transmitting station.
- a) Apply the routing guidelines to find the shortest paths using (10)9 Distance Vector Routing.

#### [OR]

- b) Discuss the Quality of Service parameters in detail with an 10 (10)example.
- a) What are the steps to be followed for creating an effective data 11 (10)forwading using Broadcast Routing? Give an example.

## [OR]

- 12 b) Explain packet fragmentation in internet working. How do the IPv4 (10) and IPv6 differ in packet fragmentation?
- 13 a) What is port Number? Explain the importance of the port number (10)along with its various divisions.

### [OR]

- 14 b) Discuss the combined form of flow control and error control in (10)transport layer.
- **15** a) Assume you need to write and test a client-server application (10)program on two hosts you have at home.
  - (i). What is the range of port numbers you would choose for the

(ii). What is the range of port numbers you would choose for the server program? (iii). Can the two port numbers be the same? [OR] 16 b) Elaborate the Window management and Silly window syndrome (10) concepts used in the TCP transmission policy. a) Can a program written to use the services of UDP be run on a (10) **17** computer that has installed TCP as the only transport-layer protocol? Explain. [OR] b) Distinguish between centralized and decentralized P2P networks. (10)a) Assume we add a new protocol to the application layer. What (10)changes do we need to make to other layers? [OR] 20 b) Assume we design a new client-server application program that (10)requires persistent connection. Can we use UDP as the underlying transport-layer protocol for this new application? Justify your answer with a network example.

client program?