

[No. of Printed Pages - 4]

IT307

Enrol. No. A2205219.202

[ET]

END SEMESTER EXAMINATION : NOV-DEC, 2021

## EXPLORING THE NETWORKS

Time : 3 Hrs.

Maximum Marks : 60

Note: Attempt questions from all sections as directed.

### SECTION - A (24 Marks)

Attempt any four questions out of five.

Each question carries 06 marks.

1. Highlight the principle difference between :

(a) Guided media and unguided media

(b) Ring and Star network topology

2. Compare the devices and topologies of a LAN to the devices and topologies of a WAN. What are the options connecting to the internet?

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3. What are the Cisco IOS mode? Also configure hostnames on a Cisco IOS device using the CLI.
4. Explain the role of the major header fields in the IPv4 and IPv6 packets.
5. Explain how a small network serves as the basis of larger networks? Describe common network troubleshooting methodologies.

### SECTION - B (20 Marks)

*Attempt any two questions out of three.*

*Each question carries 10 marks.*

6. (a) Describe application layer protocols that provide IP addressing services, including :

TELNET, SSH, SMTP, FTP, DNS and DHCP.

- (b) What information does an end device need to have to communicate with remote networks?

7. Define the term supernetting? What is the network ID of the IP address 225.100.123.70? If a class B

network on the Internet has a subnet mask of 255.255.248.0, what is the maximum number of hosts per subnet?

8. (a) Explain how the TCP/IP model and OSI model are used to facilitate standardization in the communication process.
- (b) Describe the purpose of ARP. Explain how ARP requests impact network and host performance.

**SECTION - C** (16 Marks)  
*(Compulsory)*

9. (a) Suppose Wipro Technologies Pvt. Ltd. Located at Bangalore uses CIDR value /27 for subnetting purpose. Compute the following parameters :
- (i) Number of subnets.
  - (ii) Number of hosts per subnet.
  - (iii) Valid subnet ids.
  - (iv) Valid host range for each subnet\_id.

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(b) Why would a switch need to be configured with a default gateway? (4)

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