

GUJARAT TECHNOLOGICAL UNIVERSITY

DI -4 SEMESTER – OLD PAPER – S23 TO W24 – QUESTION BANK(English)

Subject Name & Code:

Computer Networking- 4340703

Unit I - Basics of Computer Network

Repeated Questions:

1. **Define computer network and list out its applications.**
 - Appeared in: W24 (Q1a, 03 marks), S24 (Q1a, 03 marks)
2. **List the types of networks. Explain any one type in detail.**
 - Appeared in: W24 (Q1c-OR, 07 marks), S24 (Q1c-OR, 07 marks), S23 (Q1c-OR, 07 marks)
3. **Define Topology. Explain any two topologies in detail.**
 - Appeared in: W24 (Q1c, 07 marks), S24 (Q1c, 07 marks)

Other Important Questions:

4. Explain characteristics of computer network. (S23 - Q1a, 03 marks)
5. Explain BUS, STAR and RING Topology. (S23 - Q1c, 07 marks)
6. Compute no of cables required to connect 8 computers using Mesh topology and Ring topology. (W23 - Q1b, 04 marks)
7. Compare LAN, MAN & WAN in detail. (W23 - Q2c, 07 marks)
8. Explain line configuration in detail. (W24 - Q3a, 03 marks), (S24 - Q3a-OR, 03 marks)
9. What is file server? Write its two applications. (S23 - Q3a, 03 marks)
10. What is proxy server? Write its two applications. (S23 - Q1b, 04 marks)
11. Explain mail server. List out its two applications. (S24 - Q1b, 04 marks)
12. Explain web server. List out its two applications. (W24 - Q1b, 04 marks)
13. Define server. List out various type of servers and explain any two in detail. (W23 - Q1d, 07 marks)

Unit II - The Reference Model for network communication

Repeated Questions:

1. **Explain OSI model with function of each layer in detail.**
 - Appeared in: W24 (Q2c, 07 marks), S24 (Q2c, 07 marks), W23 (Q1c, 07 marks)
2. **Differentiate between TCP and UDP protocol.**
 - Appeared in: W24 (Q2a, 03 marks), S24 (Q2a, 03 marks)
3. **Differentiate between connection less and connection-oriented services.**
 - Appeared in: W24 (Q2a-OR, 03 marks), S24 (Q2a-OR, 03 marks)

Other Important Questions:

4. Give difference between TCP/IP and OSI reference model. (S23 - Q2a, 03 marks)
5. Draw OSI reference model. Give functionality of each layer of the OSI model. (S23 - Q2c, 07 marks)
6. Explain TCP/IP model with function of each layer in detail. (W24 - Q2c-OR, 07 marks), (S24 - Q2c-OR, 07 marks), (W23 - Q1c-OR, 07 marks)
7. List advantages and Disadvantages of TCP/IP model. (S23 - Q2c-OR, 07 marks)
8. Give comparisons of connection oriented and connection less service. (S23 - Q2a-OR, 03 marks)
9. List out full forms of OSI, TCP/IP and ISO. (W23 - Q3a, 03 marks)
10. List out full forms of LLC, MAC and IP. (W23 - Q3a-OR, 03 marks)

Unit III - Transmission Media & Network devices

Repeated Questions:

1. **Write down the advantages and disadvantages of Fiber-optic cable.**
 - Appeared in: S24 (Q2b, 04 marks), S23 (Q2b-OR, 04 marks)
2. **Give differences between bridge and router.**
 - Appeared in: W24 (Q3b, 04 marks), S24 (Q3b, 04 marks), S23 (Q3b, 04 marks)
3. **Write a short note on hub.**
 - Appeared in: W24 (Q3a-OR, 03 marks), S24 (Q3a-OR, 03 marks)

Other Important Questions:

4. Write down the advantages and disadvantages of Co-axial cable. (W24 - Q2b, 04 marks)
5. Draw a neat sketch of Coaxial cable to show its components. (S23 - Q2b, 04 marks)
6. Write a short note on router. (W24 - Q2b-OR, 04 marks)
7. Write a short note on switch. (S24 - Q2b-OR, 04 marks)
8. Explain Layer 2 Switch in detail. (W24 - Q3b-OR, 04 marks), (S24 - Q3b-OR, 04 marks)
9. Explain Repeater, Hub, Switch & router in detail. (W23 - Q4c, 07 marks)
10. Compare layer 2 and layer 3 switches in detail. (W23 - Q4c-OR, 07 marks)
11. Give difference between Guided and Unguided media. (S23 - Q3c, 07 marks)
12. List various connectors used in Guided media. (S23 - Q5b-OR, 04 marks)
13. List out various advantages and disadvantages of Infrared waves. (W23 - Q2a, 03 marks)
14. Explain satellite communication in brief. (S24 - Q5c-OR, 07 marks)
15. Differentiate between layer 2 & layer 3 switch. (S24 - Q3b-OR, 04 marks)

Unit IV - IP Protocol

Repeated Questions:

1. **Define Datagram. Explain IP Datagram with figure.**
 - Appeared in: W24 (Q3c, 07 marks), S23 (Q5c, 07 marks)
2. **Explain IPv4 classful addressing in detail.**
 - Appeared in: W24 (Q3c-OR, 07 marks), S23 (Q4c, 07 marks)
3. **Differentiate between IPv4 and IPv6.**
 - Appeared in: S24 (Q4b-OR, 04 marks), W23 (Q3c-OR, 07 marks)
4. **Define Subnetting. Explain subnet masking with example.**
 - Appeared in: S24 (Q5b, 04 marks), W23 (Q5a-OR, 03 marks)

Other Important Questions:

5. Define IPv6 protocol and list out its features. (S24 - Q4a, 03 marks)
6. Define IPv4 protocol and list out its features. (W24 - Q4a, 03 marks)
7. Explain classless addressing in detail. (S24 - Q4c-OR, 07 marks)
8. Explain the IPV4 datagram format. (S23 - Q3c-OR, 07 marks)
9. Explain IPV4 classes in detail. (S23 - Q4c-OR, 07 marks)
10. Explain identification, flag, header length in IPV4 datagram. (S23 - Q4b, 04 marks)
11. List out IPv4 characteristics and explain its advantages and disadvantages. (S24 - Q4c, 07 marks)
12. Explain advantages and limitations of IPv4. (S24 - Q4b, 04 marks)
13. Explain IPv4 Header Format with help of diagram. (W23 - Q3c, 07 marks)
14. Compare IPv4 and IPv6. List out features of IPv6. (W23 - Q3c-OR, 07 marks)
15. Define subnetting and list out subnet mask of class A. (W23 - Q4a-OR, 03 marks)
16. Explain Classful IP addressing scheme. (W23 - Q4a, 03 marks)

Numerical / Configuration Problems:

17. An organization is granted the block 211.17.180.0/24. The administrator wants to create 32 subnets. Find the Network ID, subnet mask, and number of addresses in each subnet. (W23 - Q3b, 04 marks)
18. An organization is granted the block 130.56.0.0/16. The administrator wants to create 1024 subnets. Find the Network ID, subnet mask, and number of addresses in each subnet. (W23 - Q3b-OR, 04 marks)
19. For a given IP address 151.40.5.6 Compute: Network ID, Last Host ID, Broadcast address. (W23 - Q5b, 04 marks)
20. For a given IP address 204.40.15.6 Compute: Class of IP, Network ID, Subnet mask. (W23 - Q5b-OR, 04 marks)
21. Identify whether following IPv4 address are valid or not. If invalid then write the reason.
1) 204.10.2.3 2) 10.5.310.4 3) 11011001.24.5.10 (W23 - Q5a, 03 marks)
22. Change the following IPv4 addresses from dotted-decimal notation to binary notation.
1) 110.15.20.62 2) 201.62.64.10 3) 192.16.8.10 (W23 - Q5a-OR, 03 marks)

Unit V - Network Security Aspects

Repeated Questions:

1. **Define firewall and explain its types in detail.**
 - Appeared in: S24 (Q5c-OR, 07 marks), W23 (Q5c-OR, 07 marks)
2. **List and discuss various security terms.**
 - Appeared in: S24 (Q5a-OR, 03 marks), S23 (Q5a-OR, 03 marks)
3. **Explain various types of threats.**
 - Appeared in: S23 (Q4a-OR, 03 marks), W23 (Q5c, 07 marks)

Other Important Questions:

4. Define security basics in detail. (S23 - Q5a, 03 marks)
5. Explain security basics. (W23 - Q2c, 04 marks)
6. Explain viruses and worms. (S23 - Q4a, 03 marks)
7. Define threats to security and explain viruses, worms and intruders in detail. (S24 - Q5c, 07 marks)
8. Define Intruders and Insiders with example. (W23 - Q2b, 04 marks)
9. What is a firewall? Explain working and design principles. (S23 - Q5c-OR, 07 marks)
10. Differentiate between Hub and Switch. (S24 - Q5b-OR, 04 marks)
