

- 22. Is the size of the ARP packet fixed? Explain (Nov/Dec 2008)
- 23. State the duties of network layer (April/May 2010)
- 24. Define geographical routing (April/May 2010)
- 25. What is multicasting? (Nov/Dec 2010)
- 26. What is the function of a router? (Nov/Dec 2010)

**PART B**

- 1. (i) State the major difference between Distance Vector Routing and Link State Routing. Discuss how these routing techniques work.  
(ii) State which layers of the ISO OSI mode; does the following interconnecting devices operate (4)  
1. Repeaters      2. Bridges      3. Routers      4. Gateways (Nov Dec 2006)
- 2. (i) Explain Routing table and Routing module. (8)      (ii) Explain Link state routing. (8) (Nov Dec 2007)
- 3. (i) Explain about Special IP addresses in detail (8)      (Nov/Dec'12)  
(ii) A company is granted the site address 201.70.64.0. The company needs 6 subnets. Design the subnets (8) (Nov Dec 2007)
- 4. Explain the inter domain routing. (8) (Dec-12)
- 5. Explain the RIP algorithm with a simple example of your choice. (16) (May-14)
- 6. Discuss briefly about RIP. (16) (May 12)
- 7. Describe the distance vector routing protocol with examples. And Write advantages and disadvantages (16) (Dec-13, Nov/Dec 2009, Nov/Dec'12)
- 8. Describe briefly about OSPF. (16) (May-12, Nov/Dec 2008)
- 9. (i) Discuss briefly about Network Address Translation (10) (A/M'10)  
(ii) Define fragmentation and explain why the IPv4 and IPv6 protocol need to fragment some packets (6) (Nov/Dec 2008)
- 10. Describe the Link State routing protocol with examples. And Write advantages and disadvantages (16) (Nov/Dec 2009)
- 11. (i) What is the purpose of subnetting? Explain the various subnet mask.  
(ii) Briefly explain the various routing techniques in detail (A/M'10)
- 12. How IP address space divided into different classful addresses? Explain (A/M'10)
- 13. (a) Write notes on the following : (i) Internet protocol (ii) Routers. (Nov/Dec 2010)
- 14. Discuss in detail the various aspects of IPv6. (Nov/Dec 2010)
- 15. Illustrate with a neat sketch, the IPV 4 datagram format. Compare the fields in the main headers of IPV 4 and IPV 6. (16) (A/M'11)
- 16. Describe briefly the following : (i) Internet control message protocol. (12) (ii) Find the class and CIDR notation of each address (1) 11000001 10000011 00011011 1111 1111 (2) 14.23.120. 8. (4)

**UNIT 4**

**TRANSPORT LAYER**

**PART A**

- 1. What are the advantages of using UDP over TCP? (Dec-10)

- *TCP always guarantees three things - your data reaches its destination, it reaches there in time and it reaches there without duplication.*
- *In TCP, since all the work is done by the operating system, so you just need to sit back and watch the show. Even the debugging is taken care of by your OS.*
- *It automatically breaks up data into packets for you.*
- *It is slower in functioning than UDP*

2. Give the approaches to improve the QoS. (May-11)

- *Fine grained approaches: Provide QoS to individual applications or flows.*
- *Coarse grained approaches: Provide QoS to large classes of data.*

3. What is TCP? (Dec-11)

- *The Transmission Control Protocol (TCP) is one of the two original core protocols of the Internet protocol suite (IP) and is so common that the entire suite is often called*

*TCP/IP.*

- *TCP provides a connection oriented, reliable byte stream services.*
- *The term connection oriented means the two applications using TCP must establish a*
- *TCP connection with each other before they can exchange data.*

4. Define congestion.(Dec-11)

*A state occurring in part of a network when the message traffic is so heavy that it slows down network response time.*

5. Draw TCP header format. (May 12)

6. Explain how TCP flow control works. (May /Jun 2007)

- *TCP flow control mechanism achieve using Sliding window mechanism that generates that the receive buffer does not overflow. To avoid congestion, TCP uses the Additive Increase and Multiple Decrease (AIMD) concepts.*
- *The TCP sender is not allowed to send more data than the receiver can receive. Because TCP connections are full duplex, this happens in both directions.*

7. What do you mean by QoS? (May-12)

- *Quality of service is used in some organizations to help provide an optimal end-user experience for audio and video communications.*
- *QoS is most commonly used on networks where bandwidth is limited*

8. Differentiate between delay and jitter. (Dec 13)

*Delay: It is the time taken by a packet to travel across the network from source to destination.*

*Jitter: It is an unwanted variation of one or more characteristics of a periodic signal in electronics and telecommunications. Jitter may be seen in characteristic such as the interval between successive pulses, or the amplitude, frequency, or phase of successive cycles. Jitter is a significant factor in the design of almost all communications links.*

9. What is the difference between congestion control and flow control? (May 11)

*FLOW CONTROL CONGESTION CONTROL*

*Done by server machine Done by router*

*Cannot block the bandwidth of medium Block the bandwidth of medium*

*Affects less on network performance Affects the network performance*

**CN**

*Uses buffering Does not use buffering*

10. Define slow start.(May-14)

*Slow start: It is congestion in TCP*

11. When can application make use of UDP? (May-14)

- *Fast data transmission & multicast operation*

12. What is datagram socket(Nov/Dec 2006)

13. "TCP software is implemented as a Finite State Machine" Discuss. (Nov/Dec 2006)

14. Give the format for UDP datagram and give the meaning for each field (Nov/Dec 2007)

15. Define the term A . Jitter B. Socket Address (Nov/Dec 2007)

16. Do port addresses need to be unique? Why of why not? (Nov/Dec 2008)

17. How are congestion control and QoS related? (Nov/Dec 2008)

18. Reliability is not required for a data communication. Even then transport layer is required in TCP/IP networks. Why? (Nov/Dec 2009)

19. What types of applications prefer UDP rather than TCP? (Nov/Dec 2009)

20. Name the three types of socket interface (April/May 2010)

21. What is the purpose of TCP push operation (April/May 2010)

22. Define Socket (N/D'12)

23. List the various network-oriented QoS Services (Nov/Dec 2012)

**PART B**

1. Write a detailed note on: i) RPC ii) RTP (16) (May-11)

2. What is QoS internetworking? State the techniques to improve QoS. (May June 2007, Nov/Dec 2008,A/M'10, A/M'11)

3. Explain with example RTP. (Dec 13)

4. Illustrate and explain UDP and its packet format. (Dec-11, A/M'10)

5. With neat architecture, explain TCP in detail.(16) (Dec-10,Dec'12)

6. Explain TCP header format in detail.(6) (Dec-12)

7. What is the need for Nagle's algorithm? How does it determine when to transmit data? (16) (Dec-10)

8. Explain adaptive flow control in detail and its uses. (16) (Dec-10)

9. Explain any one congestion control algorithm. (6) (Dec-12)

10. Explain the principles of congestion control in TCP. (16) (May-14) (Nov/Dec 2007,2013,A/M'11)

11. Explain in detail about TCP congestion avoidance algorithm. (16) (Dec-10, DEC'11)

12. (i) List and Discuss the various primitives for a simple transport service (6)

(ii) "DNS can use the services of UDP or TCP using port 53". Discuss when UDP is used and when TCP is used

(iii) Highlight the features of UDP and briefly discuss the same (6) (N/D 2006,Dec'11,N/D'12)

13. (i) Discuss connection establishment and connection release in TCP (6) (16 M- Nov/Dec 2008, A/M'11)

(ii) Discuss how TCP provides reliability using error control (6)

(iii) Discuss the strategies of TCP uses to avoid congestion (4) (Nov/Dec 2006)

14. (i) Explain the Steps involved in computing checksum for an UDP Datagram(12)

(ii) Explain Four way handshaking method to terminate a connection in TCP (4) (Nov/Dec 2007)