**COMPUTER NETWORKS AND SECURITY (18CS52) QUESTION BANK**

**Module –1The Application layer**

1.Explain the Principles of Network Applications Network Application Architectures

(08 Marks) (Jan 2018)

2.Explain the Processes Communication and Transport Services Available to Applications

(08 Marks)

3.What are the Transport Services Provided by the Internet (08 Marks)

4 Describe Application-Layer Protocols web and HTTP (08 Marks)

5.Differentiate between Non-Persistent and Persistent Connections in HTTP

(08 Marks) (Jan 2018,19)

6.Give HTTP Message Format with diagram and explanation (08 Marks)(Dec 2019)

7.Explain in brief Cookies and web caching (08 Marks) (Jan 2018, Dec 2019)

8.Explain the Conditional GET operation in brief (05 Marks)

9.Explain the File Transfer protocol,FTP Commands and Replies (08 Marks) (Dec 2019,2020)

10.Describe the Electronic Mail in the Internet and its services

11.Illustrate the basic operation of SMTP with an example.

12.Explain the SMTP protocol to transmit mails from sender to receiver (08 Marks) (Dec 2019)

13. Compare SMTP with HTTP (05 Marks,June 2019,2020)

14.In brief explain Mail Message Format and Mail Access Protocols (08 Marks)

15.What are the Services Provided by DNS.Give detailed description (08 Marks,Jan 2018)

16.Explain the Overview of How DNS Works (08 Marks)

17.Explain the DNS Records and Messages in detail (08 Marks) (Dec 2019)

18.Explain Peer-to-Peer Applications, P2P File Distribution, Distributed Hash Tables (DHTs)

(08 Marks)

19.Explain the Socket Programmingin UDP (08 Marks)

20.Explain the Socket Programming in TCP (08 Marks,June 2019)

21.Explain DNS. Also explain domain name space and DNS message format

(08 Marks,June 2019)

22.Write a note on:

i)File transfer and FTP

ii)World wide web and HTTP (08 Marks,July 2014-OS )

23.Demonstrate socket implementation using TCP (5 Marks, Jan 2018)

24.Explain client server and peer to peer architecture (8 Marks, Jan 2019)

25.Discuss how files are distributed in peer-to-peer applications (8 Marks, Jan 2019)

26.which protocol can be used for fetching web pager?Explain its working with request and response message formats (10 Marks, Jan 2020)

27.Explain the services offered by DNS and also explain the DNS record and message format

(10 Marks, Jan 2020)

28.Illustrate how P2P architecture can be adopted in file sharing application like bit torrentz

(8 Marks, Jan 2020)

**Module –2 The Transport layer**

1.Explain the transport-Layer Services and Overview of the Transport Layer in the internet (08 Marks)

2.Explain connection-oriented Multiplexing and Demultiplexing in transport layer

(08 Marks Jan 2018,19)

3.Explain the connectionless-oriented multiplexing and demultiplexing (05 Marks Jan 2018)

4.In brief describe UDP Segment Structure, UDP Checksum (08 Marks)

5.Explain the Principles of Reliable Data Transfer in TCP (08 Marks)

6.Elaborate the three way Handshaking in TCP. (06 Marks Jan 2018) (Dec 2019,June 2019)

7Explain the Reliable Data Transfer Protocol, Pipelined Reliable Data Transfer Protocols

(08 Marks)

8.In detail explain the (i)Go Back-N and (ii) Selective repeat for reliable Data TransferTCP

(08 Marks Jan 2018) (Dec 2019)

9.With neat diagram explain the TCP Segment Structure (08 Marks Jan 2018,Dec 2019,2020)

10.Explain the Round-Trip Time Estimation and Timeout in Reliable Data Transfer using TCP

(08 Marks)

11.Explain Flow Control in detail(05 Marks)

12.Explainin brief Principles,Causes and the Costs of Congestion control

(08 MarksJan 2018) (Dec 2019)

13.What are the approaches to Congestion Control, explain in brief (08 Marks, June 2019).

14.Explain the Network-assisted congestion-controlexample, ATM ABR Congestion control,

(08 Marks)

15.Explain the Fairness in TCP Congestion Control: (08 Marks)

16.Suppose that two measured sample RTT values are 086ms and 120ms.Compute

i) Estimate RTT after each of these sample RTT value is obtained. Assume α=0.125 and estimated RTT is 080 msec just before first of the samples obtained.

ii) Compute DevRTT.

Assume β=0.25 and DevRTT was 5msec before first of these samples are obtained.

(08 Marks Jan 2018,June 2019,2020)

17.Draw and Explain FSM for sender and receiver side of rdt 2.1 protocol (08 Marks, June 2019)

18.Draw and Explain FSM for sender and receiver side of rdt 2.0 protocol (08 Marks, Jan 2020)

19.Explain selective repeate ARQ protocol (06Marks, Jan 2020)

20. Explain how connection establishment and termination handled by TCP(07Marks, Jan 2020)

21.what is congestion in network?Explain how TCP handles congestion(07Marks, Jan 2020)

**Module –3 The Network layer**

1.Explain the Input Processing, Switching, Output Processing in routing. (08 Marks)

2.Explain the IPv6 format and explain the fields of IPv6 in detail. (08 Marks)

3.Explain the (i)Link-State (LS) Routing Algorithm (ii) Distance-Vector (DV) Routing

Algorithm, (iii)Hierarchical Routing (08 Marks)

4.Explain the Routing in the Internet (08 Marks)

5.What is routing? Explain the structure of router (06 Marks Jan 2018,Dec 2019,20)

6.Explain the Intra-AS Routing in the Internet: RIP in detail. (08 Marks,Jan2020)

7.Explain the Intra-AS Routingin the Internet: OSPF (08 Marks,June 2019)

8.In brief explain the Inter/AS Routing: BGP (08 Marks)

9.Elaborate the path attributes in BGP and steps to select the BGP routes. (05 Marks Jan 2018)

10.Explain Broadcast Routing Algorithms and Multicast. (08 Marks Jan 2018)

11.List and explain goals of routing algorithm (05 Marks)(June 2017-OS,Jan 2014-OS)

12.Write the shortest path for the below network using link state and distance vector routing algorithm (08 Marks, Jan 2017,Dec 2019,20)

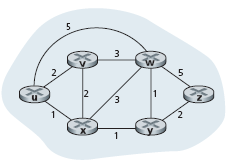


Fig Q(08)

13.Write the link-state routing algorithm. Solve the following graph using link-state algorithm with source node ‘u’. (08 Marks) (Jan 2018,June 2019)

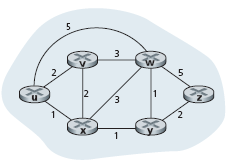


Fig Q(11)

14.Explain the IpV6 header format with neat diagram(08 Marks,Jan 2017-OS,July 2014-OS )

15. Explain the IpV6 packet format. (08 Marks,Jan 2018,2020)

16.What is OSPF?Explain operation with aid of diagram

(08 Marks,Jan 2017-OS,Jan 2014-OS,July 2014-OS, Dec 2019)

17.Explain multicast routing with example (08 Marks,Jan 2017-OS )

18.Explain the queing model in leaky bucket (06 Marks,Jan 2017-OS )

19 Write a note on: (08 Marks,Jan 2017-OS,Jan 2015-OS,July 2014-OS, Jan 2018,June 2019)

i)IGMP protocol

ii)Mobile IP

20.Write a three way handshake for establishment of TCP connection(06 Marks,Jan 2017-OS )

21.Write a short note on routing information protocol(06 Marks,Jan 2017-OS )

22.Write a note on User Datagram protocol(06 Marks,Jan 2015-OS )

23.Write the advantages and disadvantages of UDP (06 Marks,Jan 2014-OS )

24.Explain IP fragmentation (08 Marks,Dec 2019)

25.Compare link state with distance vector algorithm (04 Marks,Dec 2019)

26.List the broadcast routing algorithm.Explain any one of them (07 marks, Jan 2020)

27..Explain the various packet scheduling mechanism (08 Marks, Jan 2020)

**Module –4 Network Security**

1.Explain in breif

a)Elements of network security

b)Internet infrastructure attacks (10 Marks,NS)

2.Explain security methods such as cryptographic techniques and authentication techniques

(10 Marks,NS)

3.Explain Data Encryption Standard(DES) algorithm (10 Marks,NS)

4.Explain Advanced Encryption standard(AES) algorithm (10 Marks,NS)

5.Explain RSA algorithm in detail (10 Marks, NS)

6.Explain diffie-Hillman key-exchange protocol (05 Marks, NS)

7.Explain Authentication technique and also explain Secure Hash Algorithm (05 Marks, NS)

**Module –5 Multimedia Networking Applications**

1.What are the Properties of video and properties of Audio.Explain in detail.

(08 Marks,Jan 2020)

2.Explain the types of multimedia Network Applications (08 Marks,June 2019)

3.Elaborate the features of Streaming stored video (08 Marks) (Jan 2018,2020)

4.Explain UDP Streaming (08 Marks,June 2019)

5. Explain HTTP Streaming (08 Marks)

6. Explain Adaptive streaming and DASH (08 Marks)

7. Explain content distribution Networks(CDN) operation with neat diagram.

(08 Marks) (Jan 2018,June 2019,Jan2020)

8. Explain Network Support for Multimedia with Dimensioning Best-Effort Networks(08 Marks)

9. Explain Network Support for Multimedia Providing Multiple Classes of Service(08 Marks)

10.Explain Diffserv internet architecture. (08 Marks) (Jan 2018)

11Explain the Per-Connection Quality-of-Service (QoS) Guarantees such as Resource Reservation and Call Admission (08 Marks)

12.What is the purpose of network management?Explain the characterisation of network management. (08 Marks,Jan 2017-OS)

13.Expalin the different losses of compression? Explain with example (08 Marks,Jan 2017-OS)

14.Write the significant services of QOS (06 Marks,Jan 2017-OS )

15.Explain the classification of resource allocation scheme (08 Marks,Jan 2016-OS )

16.Summarize the limitations of Best-effort IP service. (05 Marks) (Jan 2018)

17.Describe the leaky bucket policing mechanism. (06 Marks) (Jan 2018,June 2019,Jan 2020)

18.Discuss the round-robin and waited fair queuing scheduling mechanism(05 Marks) (Jan 2018)

19.Explain Naïve architecture for audio/video streaming with diagram (08 Marks, Dec 2019)

20.Explain audio compression in internet (08 Marks, Dec 2019)

21.With diagram, explain interaction between client and server using RTSP

(08 Marks, Dec 2019)

22.Explain how streaming from streaming server to a media player is done

(08 Marks, Dec 2019)

23.Describe the link scheduling mechanisms (06 Marks, June 2019)