18CS52: Questions worth considering from VTU exam perspective

M1

1. Compare Client-Server and Peer-to-Peer architecture.
2. Compare and contrast HTTP persistent with non-persistent connectionsl
3. Describe the services provided by DNS.
4. Explain UDP Socket implementation with an example for both client and server side
5. Explain TCP Socket implementation with an example for both client and server side
6. Explain the role of web caching in improving performance HTTP and provide an example caching usage using the headers “Last-Modified” and “If-Modified-Since”.
7. Describe the working of SMTP protocol with an example
8. Describe the working of POP3 protocol with an example
9. Explain the use of control channel and data channel in FTP by providing an example of FTP Commands and Replies.
10. Describe P2P architecture and how it scales up in distributing contents of a file to all peers.
11. Discuss the structure of HTTP Request and response message and briefly describe 5 categories of status codes in Status line of HTTP Response message.

M2

1. Describe the 4 types of transport services provided by Internet and which one of these are supported by TCP and UDP
2. Compare and contrast Go-Back-N with Selective Repeat protocol
3. Illustrate working of TCP 3-way handshake and associated TCP flags
4. Differentiate between connection oriented and connection less multiplexing.
5. Compare connection oriented multiplexing with demultiplexing
6. Explain TCP segment structure. Illustrate use of TCP receive window field with scaling factor.
7. Computation of RTT, DevRTT and timeout values given the measured RTT values.
8. Explain computation of UDP checksum and why pseudo headers are required in computing this checksum.
9. Describe the shortcomings of RDT 2.0 and how these are addressed in RDT 2.1
10. Explain causes and cost of congestion.
11. Describe 3 phases of TCP congestion control and transition events that causes TCP to move between these.

M3

1. Compare and contrast the fields in the main headers of IPv4 and IPv6 protocols
2. Describe Link State routing algorithm and apply this algorithm to find shortest path from a node in a given graph, apply distance vector routing algorithm to compute the routes for all routers.
3. For a given graph,
4. Illustrate 3 types of switching fabric used in a router and compare their performance.
5. Describe the use of Path attributes in BGP and define the sequence of steps used to select BGP Routes.
6. Compare and contrast 3 types of Broadcast routing algoriithms.
7. In the router architecture, where does Head of Line (HoL) blocking occurs and why.

8. Describe the algorithms used to compute the spanning tree in the case of multicast routing protocols.
9. Describe the 4 types of OSPF hierarchical routers and their functionalities.
10. Differentiate between Inter-AS and Intra-AS routing.

M4

1. Describe 3 elements of network security.
2. Describe 4 categories of internet infrastructure attacks.
3. Using a neat diagram, describe two types of encryption points in a communication network,
4. Write short notes on
    a. DES Algorithm
    b. AES algorithm
5. Describe RSA algorithm and using prime numbers 5 and 7, demonstrate it working when transmitting a message with the value 4.
6. Describe Diffie-Hellman algorithm and demonstrate its working using prime number 7.
7. List and explain the properties of a good hash function, and describe use of hash function in message authentication.
8. Define the steps used in SHA algorithm.
9. Describe different type of firewalls and explain use of packet filtering in firewall implementation.

M5

1. Compare and contrast 3 categories of multimedia network applications.
2. Describe the 3 mechanisms used in streaming stored multimedia and discuss their pros and cons.
3. Illustrate the working of CDN with the help of a neat diagram.
4. Describe the fields of RTP with their use in multimedia conversation.
5. Explain two types of redundancies in multimedia communication and how these are used to achieve compression.
6. Explain how streaming from DASH streaming server to media player is done and its advantages over HTTP Streaming.
7. Describe the limitation of Best Effort service in VoIP communication.
8. Describe use of SIP protocol in establishing real time conversation.
9. Describe the techniques used in recovering from error in VoIP.
10. Describe the two approaches used in FEC and compare these.