

# **ARASU ENGINEERING COLLEGE, KUMBAKONAM**

## **DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**Academic year 2019-2020 (ODD)**

**Question Bank Regulation 2017**

**CS8591 – COMPUTER NETWORKS**

**V - SEMESTER**

### **UNIT-I PHYSICAL LAYER**

#### **PART-A**

1. Differentiate guided and unguided transmission medium.
2. What are the features of data gram networks?
3. Differentiate intranet and internet.
4. Define multiplexing and de-multiplexing.
5. What is protocol?
6. Define PDU.
7. List the advantages of connection oriented services over connectionless services.
8. List the types of optical fiber and the modes of fiber.
9. Define the 4 types of addressing.
10. Define network topologies and the types of networks.

#### **PART-B**

1. Explain the Internet architecture and define connectionless and connection oriented
2. Explain in detail about guided and unguided transmission media.
3. Explain in detail about switching technologies.
4. Elaborate the switching techniques and the types in detail.
5. Discuss in detail about the layers of the OSI model and architecture
6. Explain the strategies which can be used to increase the network performance.(8)
7. Explain types of networks and network topologies (8)
8. Explain in detail about ARP and RARP protocols.

**UNIT-II - DATA LINK LAYER****PART-A**

1. Define framing and the byte stuffing?
2. Differentiate Wired LAN and Wireless LAN.
3. Define the 3 design issues of Data Link Layer.
4. What is HDLC? List the HDLC frame types
5. List the mechanism of stop and wait flow control?
6. Compare byte oriented versus bit oriented protocol.
7. Define CSMA, CSMA/CD
8. Define router how it differs from repeater.
9. Define Ethernet and compare its types
10. What is collision and collision Detection?

**PART-B**

1. Explain Protocols for noiseless and Noisy channels.
2. Explain in detail about error detection and correction mechanism. (or) Discusses the approaches used for error detection in networking (or) address the framing problem. Discuss the flow control mechanism
3. Explain in detail about HDLC and PPP protocols.
4. Discuss in detail about Random access and controlled access methodologies.
5. Discuss the Ethernet IEEE 802.3 in detail with binary exponential Back algorithm.
6. Explain MAC sub layer protocol and frame structure of IEEE 802.11.
7. Discuss the following in detail.
  - a. Token ring
  - b. Bluetooth
  - c. Wireless LAN
  - d. Connecting Devices (Hub, Repeaters, Bridges, Switch, Routers, Gateway, NIC)

### **UNIT-III - NETWORK LAYER**

#### **PART-A**

1. Why IPV6 is preferred then IPV4?
2. What is the use of network address translation?
3. State the difference between classless and class full addressing.
4. What is the purpose of RIP?
5. What is the use of BGP?
6. What is the use of routing table?
7. Define address mapping.
8. What is three way hand shaking?
9. What are the functions of ARP and RARP?
10. What is the specialty of DHCP?
11. How will the congestion be avoided?
12. Find the class of each address
  - (a) 00000001 00001011 00001011 11101111
  - (b) 14.23.120.8
13. Draw the general format of ICMP messages.
14. What is the use of multicast routing?
15. Write the difference between bridges and routers.
16. Find the error if any the following IP address. (a) 111.56.045.78 (b) 75.45.301.14
18. What are the limitations of distance vector routing?
19. Write any four routing algorithm.
20. What is the need for adaptive routing algorithms?

**PART-B**

1. Explain the various classes of Internet (IPv4, IPv6) addressing with suitable examples.
2. Briefly explain IGMP message format and IGMP operation.
3. Explain in detail about broadcast Routing and link state routing with examples.
4. Discuss about ARP and RARP.
5. What is the subnet work address if the destination address is 200.45.34.56 and the subnet mask is 255.255.240.0?
6. What are the limitations of distance vector routing? Explain with examples.
7. Explain Unicast and Multicast forwarding protocols for routing.
8. Explain the following i) DHCP ii) Message format and error reporting of ICMP
9. Write short notes on the following (i) BOOTP (ii) Multicast Routing

### **UNIT IV - TRANSPORT LAYER**

#### **PART-A**

1. What is the retransmission timer?
2. Draw the UDP header.
3. What is three way hand shaking?
4. Differentiate constant bit rate and variable bit rate.
5. What is meant by choke packet? How it is used for congestion control?
6. Define deadlock situation in congestion.
7. Compare TCP and UDP
8. What is meant by Quality of Service?
9. What are the sequence numbers for each segment if data are sent in five segments, each carrying 1000 bytes?
10. Mention the techniques used to improve QOS in process-to-process delivery.
11. What are the duties of transport layer?
12. What is meant by segment?
13. The transport layer creates the connection between source and destination. What are the three events involved in the connection?
14. How will the congestion be avoided?
15. What are the four aspects related to the reliable delivery of data?
16. What are the duties of the transport layer?
17. What is the function of FECN?
18. Write down various TCP features.

**PART-B**

1. With neat diagram, explain the TCP connection establishment in the normal case and collision case
2. Explain in detail window management in TCP
3. Explain the following characteristics.
  - (i) Reliability
  - (ii) Delay
  - (iii) Jitter
  - (iv) Bandwidth
4. (i) Explain how connection is established and released in TCP with a neat sketch. (ii) Explain the default timer mechanism followed in TCP.
5. Explain in detail about congestion control techniques in transport layer with a suitable example.
6. Explain in detail about transport layer protocols with neat diagram.
7. Explain the segment formats for TCP and UDP.
8. (i) Explain the features of TCP (8)  
(ii) What do you understand by “3-Way Handshake” in TCP? Explain.
9. Define QOS. Elaborate the characteristics of QOS.
10. Explain in detail about the process to process delivery using UDP and its uses.



## **UNIT V- APPLICATION LAYER**

### **PART-A**

1. List the three parts of the URL
2. Distinguish substitution and transposition cipher
3. State the difference between fully Qualified and Partially Qualified domain name.
4. What is meant by DNS?
5. Discuss the three main divisions of the DNS.
6. Why do we need POP3 or IMAP4 for E-mail?
7. Differentiate cipher text and plaintext
8. Define permutation.
9. Write down the three types of WWW documents.
10. Give the format of HTTP response message
11. Give the format of HTTP request message
12. Discuss the basic model of FTP.
13. Discuss the TCP connections needed in FTP.
14. What is the purpose of Domain Name System?

### **PART-B**

1. Explain HTTP with example.
2. Draw the architecture of WWW and explain the various blocks in detail.
3. Explain in detail about communication security and authentication with neat example.
4. Explain in detail about (i) E-mail (ii) DNS
5. Write a brief note on File Transfer Protocol.
6. Explain in detail about (i) Telnet (ii)SSH
7. Explain in detail about SNMP