

JK Lakshmipat University Jaipur
INSTITUTE OF ENGINEERING AND TECHNOLOGY

End Term Examination (Regular), November 2018
B. Tech. In Computer Science and Engineering, Semester V

Roll No.....

CSE503: COMPUTER NETWORKS

Time: 01 hour 30 minutes

Max. Marks: 30

Instructions to students:

1. Do not write anything other than your roll number on question paper.
2. Assume suitable data wherever required and mention it clearly.
3. Writing appropriate units, nomenclature, and drawing neat sketches/schematics/ flow chart wherever, required are an integral part of the answer.

Q.1A Objective type multiple choice questions (05 questions @ 1 mark) 05

- i. DHCP client and servers on the same subnet communicate via
 - a) UDP broadcast
 - b) UDP unicast
 - c) TCP broadcast
 - d) TCP unicast
- ii. Match the following IEEE No to their corresponding Name for IEEE 802 standards for LANs.

i) 802.3	a) Wi-Fi
ii) 802.11	b) WiMAX
iii) 802.15	c) Ethernet
iv) 802.16	d) Bluetooth
A) i-b, ii-c, iii-d, iv-a	B) i-c, ii-d, iii-a, iv-b
C) i-c, ii-a, iii-d, iv-b	D) i-b, ii-d, iii-c, iv-a
- iii. After obtaining the IP address, to prevent the IP conflict the client may use
 - a) internet relay chat
 - b) broader gateway protocol
 - c) address resolution protocol
 - d) none of the mentioned
- iv. In OSI model dialogue control and token management are responsibilities of?
 - (a) Session Layer
 - (b) Network Layer
 - (c) Transport Layer
 - (d) Data Link Layer
- v. In _____, each packet of a message need not follow the same path from sender to receiver.
 - (a) Circuit switching
 - (c) Message Switching
 - (b) Virtual circuit approach
 - (d) Datagram approach

Q.2 Draw the sender and receiver window for a system using Go Back-n ARQ given the following: 05

- a) Frame 0 is send; frame 0 is acknowledged.
- b) Frame 1 and 2 are sent; frames 1 and 2 are acknowledged.
- c) Frames 3,4, 5 are sent, ACK 4 is received.
- d) Frames 4,5,6,7 are sent; frames 4 through 7 are acknowledged.

OR

Q.2 Discuss how simple mail transfer protocol (SMTP) works? Can multimedia messages be transmitted using SMTP? Discuss.

Q.3 Why do DNS queries and responses use UDP instead of TCP? Why do live audio and video traffic typically use UDP? 05

OR

Q.3 A router has the following (CIDR) entries in its routing table: 05

+-----+-----+-----+	
Address/mask	Gateway
+-----+-----+-----+	
156.26.20.0/23	eth0
156.26.22.0/23	eth1
156.26.24.0/22	rout1
156.26.1.0/16	rout2
default	rout3
+-----+-----+-----+	

For each of the following IP addresses, what does the router do if a packet with that address arrives?

- 1) 156.26.21.10 2) 156.26.25.22 3) 156.26.27.2
4) 156.26.28.43 5) 129.130.12.27

Q.4A Transmitter want to transmit the message 1011 0010 0100 1011 and protect it from errors using CRC-8 polynomial $x^8+x^2+x^1+1$. 05

- Use polynomial long division to determine the message that should be transmitted.
- Suppose the leftmost bit of the message is inverted due to noise on the transmission link. What is the result of the receiver's CRC calculation? How does the receiver know that an error has occurred?

Q.4B Imagine you have been appointed to design the network to be deployed in three new buildings on a new university campus. Building A contains a dedicated computer room containing 10 very high performance dedicated servers. The servers provide services to students and staff who may need to gain access from the Internet as well as from within the university's own network. Building B contains the offices of 12 lecturers and 8 administrators who only use medium power desktop computers located on fixed desks. Building C contains two lecture rooms and a lounge/coffee shop. The lecture rooms have a desktop computer at the front for use by the lecturers, but some lecturers prefer to use their own laptop or tablet computer. All the students use laptop or tablet computers to take notes and keep in touch with their friends. An underground duct exists between building A and building B which are only 30 meters apart. Building C is 30 meters from building A but no ducts exist and installing one is not possible. 10

- What type of network should be deployed in the building that houses the dedicated computer room and what equipment should be installed?
- What type of network should be deployed in the second office building and what equipment should be installed?
- What type of network should be deployed in the teaching building and what equipment should be installed?
- What type of network connections should be used to link the buildings together and where and how should the university's Internet connection be made?