

JK LAKSHMIPAT UNIVERSITY, JAIPUR
INSTITUTE OF ENGINEERING AND TECHNOLOGY
End Term Examination (Regular/Backlog), **NOV. - 2017**
B. Tech/ M. Tech (as applicable) in Computer Science & Engineering, Semester V

Roll No.....

COURSE CODE: CSE503

Time: 3 hours

Max. Marks: 100

COURSE TITLE: Computer Networks

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.
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Q.1A Objective type multiple choice questions (10 questions @ 1 mark)

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- i. In OSI model dialogue control and token management are responsibilities of?
 - (a) Session Layer
 - (b) Network Layer
 - (c) Transport Layer
 - (d) Data Link Layer
- ii. Which multiplexing technique transmits analog signals?
 - (a) FDM
 - (b) Synchronous TDM
 - (c) Asynchronous TDM
 - (d) b and c
- iii. IEEE project 802 divides the data link layer into an upper _____ sublayer and a lower _____ sublayer.
 - (a) LLC,MAC
 - (b) MAC,LLC
 - (c) PDU,HDLC
 - (d) HDLC,PDU
- iv. If the ASCII character H is sent and the character I is received, what type of error is this?
 - (a) Single bit
 - (b) Multiple bit
 - (c) Burst
 - (d) Recoverable
- v. Which error detection method uses one's complement arithmetic?
 - (a) VRC
 - (b) CRC
 - (c) LRC
 - (d) Checksum
- vi. In an optical fiber, the inner core is _____ the cladding.
 - (a) More dense than
 - (b) Less dense than
 - (c) the same density as
 - (d) another name for
- vii. Which topology features a point-to-point line configuration?

- (a) Mesh
- (b) Ring
- (c) Star
- (d) All of the above

Viii In a network with 25 computers, which topology would require the most extensive cabling?

- (a) Mesh
- (b) Star
- (c) Bus
- (d) Ring

- ix. Session layer checkpoints _____
- (a) Allow just a portion of a file to be resent.
 - (b) Detect and recover errors
 - (c) Control the addition of headers
 - (d) Are involved in dialog control

x. In _____, each packet of a message need not follow the same path from sender to receiver.

- (a) Circuit switching
- (b) Virtual circuit approach
- (c) Message Switching
- (d) Datagram approach

Q.2 Short answer type questions (4 questions @ 2.5 marks) 10

- a) Crosstalk occurs during telephone transmission due to some transmission impairment. Explain that transmission impairment.
- b) Identify the correlation between POP and MIME protocol.
- c) Differentiate between lossless & lossy compression technique.
- d) Differentiate between public key cryptography and private key cryptography.

Q.3A SNMP protocol is used to manage network. Explain the components used in SNMP to perform the functionality of managing the network. 05

Q.3B Write down the differences between GO back N ARQ and Selective Reject ARQ protocol with the help of suitable example. 05

Q.4A Consider the TCP segment format and identify the significance of following flags: URG, PSH, FIN, ACK and SYN. 05

Q.4B ACK 7 has been received by the sender in a go back-n sliding window system. Now frames 7,0,1,2 and 3 are sent. For each of the following scenarios, discuss the significance of the receiving of

- a) An ACK 1.
- b) An ACK 4.
- c) An ACK 3.

Q.5A Explain the process of connection establishment in the Virtual Circuit Approach of Packet Switching. 05

Q.5B If a DNS domain name is *jklu.edu.in*, how may labels are involved here. Explain the level of hierarchy used in DNS. 05

- Q.6A The following is a dump of a TCP header in hexadecimal format. 05
 05320017 000000001 00000000 500207FF 00000000
 a) What is the source port number?
 b) What is the destination port number?
 c) What is the sequence number?
 d) What is the acknowledgement number?
 e) What is the length of the header?
- Q.6B How optical fiber media is more effective than other guided media? Explain. 05
 OR
- Q.6B Discuss the datagram format of IPV4 protocol and compare IPV4 and IPV6. 05
- Q.7A For transmitting the character "F", explain the process of encryption and decryption using RSA algorithm. 05
- Q.7B In classful addressing how is an IP address in class A, Class B and Class C divided ? Given the address 23.56.7.91 and the default class A mask, find the beginning address (network address). 05
 OR
- Q.7B In classful addressing how is an IP address in class A, Class B and Class C Divided ? Given the address 201.180.56.5 and the default class C mask, find the beginning address (network address). 05
- Q.8A Assume you have to set up a network lab in JK Lakshmipat University where the students are allowed to communicate with peer machines as well communicate with outer world using Internet. Explain the topology and the types of internetworking devices you prefer to incorporate in your setup with suitable justification. 10
- Q.9A Transmitter want to transmit the message 1011 0010 0100 1011 and protect it from errors using CRC-8 polynomial $x^8+x^2+x^1+1$. 10
 a) Use polynomial long division to determine the message that should be transmitted.
 b) 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.9B Write short notes on the following with respect to TCP 10
 a) End-to End communication
 b) Segment Format
 c) Connection establishment and termination.
 OR
- Q.9B Consider the TCP protocol of TCP/IP and explain the functionalities of Transport Layer provided by TCP with the help of neat diagram. 10