

Program: **Electronics Engineering**

Examination: TE Semester VI

Course Name: Computer Communication and Networks

Time: 2.5 hours

Max. Marks: 80

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry 2 marks each (10x2=20 marks)
1	Automatic repeat request error management mechanism is provided by _____.
Option A:	logical link control sublayer
Option B:	media access control sublayer
Option C:	network interface control sublayer
Option D:	application access control sublayer
2	In PURE ALOHA, vulnerable time is _____ frame transmission time.
Option A:	the same as
Option B:	two times
Option C:	three times
Option D:	four times
3.	In a mesh topology with n devices, if a new device is added, _____ new links are needed.
Option A:	n
Option B:	n-1
Option C:	n+1
Option D:	2n
4..	An address in a block is 180.8.17.9. Find the first address and last address in the block.
Option A:	180.8.0.0 and 180.8.255.255
Option B:	180.8.1.0 and 180.8.255.0
Option C:	180.8.1.1 and 180.8.255.255
Option D:	180.8.0.0 and 180.8.1.1
5.	Prefix length in classless addressing can be _____.
Option A:	1 to16
Option B:	1 to 32
Option C:	1 to 24
Option D:	1 to 8
6.	What is the SUBNET mask for a class C Network?
Option A:	255.0.0.0
Option B:	255.255.255.0
Option C:	255.255.0.0
Option D:	255.255.255.255

7..	Which of the following is the Protocol of Application layer ?
Option A:	TCP
Option B:	UDP
Option C:	SCTP
Option D:	DNS
8.	What is the hexadecimal equivalent of the Ethernet address 01011010 00010001 01010101 00011000 10111010 11111111?
Option A:	5A:88:AA:18:55:F0
Option B:	5A:81:BA:81:AA:0F
Option C:	5A:18:5A:18:55:0F
Option D:	5A:11:55:18:BA:FF
9.	User datagram protocol is called connectionless because _____
Option A:	all UDP packets are treated independently by transport layer
Option B:	it sends data as a stream of related packets
Option C:	it is received in the same order as sent order
Option D:	it sends data very quickly
10.	Simple mail transfer protocol (SMTP) utilizes _____ as the transport layer protocol for electronic mail transfer.
Option A:	TCP
Option B:	UDP
Option C:	IP
Option D:	SCTP

Q.2	Solve any Two Questions out of Three. (10 marks each)
A	What are the functions of layers in the OSI model?
B	Classify the various multiple access methods and explain CSMA-CD in detail.
C	What is traffic shaping? Explain leaky bucket technique and Token Bucket technique of traffic shaping.

Q3	Solve any Two Questions out of Three(10 marks each)
A	With neat diagram explain connection establishment in TCP using 3way handshaking?
B	What is CSMA, list its types. Explain with Neat Flowchart CSMA/CA
C	(i) Differentiate between OSI Reference Model and TCP/IP protocol suite (5 points each) (05 Marks)
	(ii) Differentiate between Twisted Pair and Optical Fiber (5 points each) (05 Marks)

Q.4	Solve any Two Questions out of Three. (10 marks each)
A	<p>Define the utilization or efficiency of the line and derive the expression for stop and wait flow control. Calculate the maximum link utilization for following cases:</p> <p>i) stop and wait flow control</p> <p>ii) Sliding window flow control with window sizes of 4 & 7</p> <p>Link specification:</p> <p>Frame length=5000 bits/frame</p> <p>Velocity of propagation=2×10^8 m/s, Link distance=30km, Data rate=50 Mbps</p>
B	<p>Using Dijkstra's shortest path algorithm, find the shortest path</p>
C	<p>An organization is granted a block of addresses with the beginning address 14.24.74.0/24. The organization needs to have 3 subblocks of addresses to use in its three subnets as shown below:</p> <ul style="list-style-type: none"> <input type="checkbox"/> One subblock of 120 addresses. <input type="checkbox"/> One subblock of 60 addresses. <input type="checkbox"/> One subblock of 10 addresses <p>From above information, design the subnetworks and find the information about each network.</p>