

University of Mumbai
Examination June 2021

Examinations Commencing from 1st June 2021

Program: **BE Information Technology Engineering**

Curriculum Scheme: Rev2019

Examination: SE Semester IV

Course Code: ITC402 and Course Name: COMPUTER NETWORK AND NETWORK DESIGN

Time: 2 hour

Max. Marks: 80

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	A Data Link Layer converts a packet of data into __ finally.
Option A:	Frames
Option B:	Bits
Option C:	TPDU
Option D:	NPDU
2.	The two sub-layers of a Data Link layer are ____.
Option A:	LLC - Logical Link Control Layer
Option B:	MAC - Medium Access Control Layer
Option C:	Both A and B
Option D:	Data Layer
3.	The functions of a Logical Link Layer (LLC) are ____.
Option A:	Error control
Option B:	Flow control
Option C:	Creating and managing the communication link between two devices with the help of the Transport layer.
Option D:	All the above
4.	Which is the protocol that maps varying IP addresses to the Physical MAC Address of a machine in a LAN network?
Option A:	ARQ (Automatic Repeat Request)
Option B:	ARP (Address Resolution Protocol)
Option C:	SLIP (Serial Line Internet Protocol)
Option D:	PLIP (Parallel Line Internet Protocol)
5.	The network layer is considered as the _____ of the network layer.
Option A:	backbone
Option B:	packets
Option C:	bytes

Option D:	bits
6.	What are the common protocols associated with the network layer?
Option A:	Address Resolution Protocol
Option B:	Reverse Address Resolution Protocol
Option C:	Internet protocol
Option D:	Neighbour Discovery Protocol
7.	The network layer is concerned with _____ of data.
Option A:	bits
Option B:	frames
Option C:	packets
Option D:	bytes
8.	A 4 byte IP address consists of _____
Option A:	only network address
Option B:	only host address
Option C:	network address & host address
Option D:	network address & MAC address
9.	DHCP (dynamic host configuration protocol) provides _____ to the client.
Option A:	IP address
Option B:	MAC address
Option C:	Url
Option D:	None of the mentioned
10.	Which of the following features is present in IPv6 but not in IPv4.
Option A:	Fragmentation
Option B:	Anycast Address
Option C:	Header checksum
Option D:	Version
11.	Communication between a computer and a keyboard involves transmission.
Option A:	Automatic
Option B:	Half-duplex
Option C:	Full-duplex
Option D:	Simplex
12.	The first Network was called _____
Option A:	CNNET
Option B:	NSFNET
Option C:	ASAPNET
Option D:	ARPANET

13.	Two devices are in network if _____
Option A:	a process in one device is able to exchange information with a process in another device
Option B:	a process is running on both devices
Option C:	PIDs of the processes running of different devices are same
Option D:	a process is active and another is inactive
14.	In computer network nodes are _____
Option A:	the computer that originates the data
Option B:	the computer that routes the data
Option C:	the computer that terminates the data
Option D:	all of the mentioned
15.	Communication channel is shared by all the machines on the network in _____
Option A:	broadcast network
Option B:	unicast network
Option C:	multicast network
Option D:	anycast network
16.	Bluetooth is an example of _____
Option A:	personal area network
Option B:	local area network
Option C:	virtual private network
Option D:	wide area network
17.	A _____ is a device that forwards packets between networks by processing the routing information included in the packet.
Option A:	bridge
Option B:	firewall
Option C:	router
Option D:	hub
18.	A list of protocols used by a system, one protocol per layer, is called _____
Option A:	protocol architecture
Option B:	protocol stack
Option C:	protocol suite
Option D:	protocol system
19.	Network congestion occurs _____
Option A:	in case of traffic overloading
Option B:	when a system terminates
Option C:	when connection between two nodes terminates
Option D:	in case of transfer failure

20.	Which of the following networks extends a private network across public networks?
Option A:	local area network
Option B:	virtual private network
Option C:	enterprise private network
Option D:	storage area network

Q2 (20 Marks Each)	Solve any Four out of Six	5 marks each
A	Compare LAN MAN and WAN.	
B	What is the Domain Name system? How does it work? Explain the resolution process.	
C	Discuss the different networking devices used for internetworking.	
D	Explain Client - Server communication model.	
E	Use RLE method of compression to compress the following data: Data: AAAACCBBDDEEFF	
F	Compare TCP and UDP.	

Q3. (20 Marks Each)	Solve any Two Questions out of Three	10 marks each
A	What is the OSI Model? Give functions and services of each layer.	
B	Construct Huffman code for the given symbols { x1,x2,.....,x8} with probabilities $P(x)=\{0.07, 0.08, 0.04, 0.26, 0.14, 0.09, 0.07, 0.25\}$. Find the coding efficiency.	
C	Explain different transmission media in networking.	