

# University of Mumbai

## Examination June 2021

Examinations Commencing from 1<sup>st</sup> June 2021

Program: **Information Technology**

Curriculum Scheme: Rev2019

Examination: BE Semester IV

Course Code: ITC402 and Course Name: Computer Network and Network Design

Time: 2 hour

Max. Marks: 80

<b>Q1.</b>	<b>Choose the correct option for following questions. All the Questions are compulsory and carry equal marks</b>
1.	OSI stands for
Option A:	Open system interconnection
Option B:	Operating system interface
Option C:	Optical service implementation
Option D:	Open service internet
2.	Which topology is most fastest topology?
Option A:	Star
Option B:	Hybrid
Option C:	Mesh
Option D:	Bus
3.	Which medium has the highest transmission speed?
Option A:	Coaxial Cable
Option B:	Optical fiber cable
Option C:	Twisted pair cable
Option D:	Electrical cable
4.	A bit-stuffing based framing protocol uses an 8-bit delimiter pattern of 01111110. If the output bit-string after stuffing is 011111000100, then the input bit-string is
Option A:	Output = 01111100100
Option B:	Output = 011111100100
Option C:	Output = 011111001100
Option D:	Output = 011111111
5.	In CSMA/CD, the frame transmission time ( $T_t$ ) should be _____ the propogation time( $T_p$ )
Option A:	$T_t > T_p$
Option B:	$T_t \geq 2T_p$
Option C:	$T_t > 2T_p$
Option D:	$T_t > 1/T_p$
6.	What is the total vulnerable time value of pure Aloha?
Option A:	$1/2 T_{fr}$
Option B:	$T_{fr}$
Option C:	$2 * T_{fr}$
Option D:	$4 * T_{fr}$

7.	A subset of a network that includes all the routers but contains no loops is called _____
Option A:	spanning tree
Option B:	cost tree
Option C:	path tree
Option D:	special tree
8.	In IPv6, the _____ field in the base header restricts the lifetime of a datagram.
Option A:	version
Option B:	next-header
Option C:	hop limit
Option D:	neighbour-advertisement
9.	The term _____ means that IP provides no error checking or tracking. IP assumes the unreliability of the underlying layers and does its best to get a transmission through to its destination, but with no guarantees.
Option A:	Reliable delivery
Option B:	Connection oriented delivery
Option C:	Best effort delivery
Option D:	Worst delivery
10.	OSPF protocol uses which algorithm?
Option A:	Distance Vector
Option B:	Path Vector
Option C:	Link State Routing
Option D:	RIP
11.	Which of the following transport layer protocols is used to support electronic mail?
Option A:	SMTP
Option B:	IP
Option C:	TCP
Option D:	UDP
12.	In TCP, one end can stop sending data while still receiving data. This is called a _____ termination.
Option A:	half-close
Option B:	half-open
Option C:	full-close
Option D:	Full open
13.	Which of the following functionalities must be implemented by a transport protocol over and above the network protocol?
Option A:	Recovery from packet losses
Option B:	Detection of duplicate packets
Option C:	Packet delivery in the correct order
Option D:	End to end connectivity
14.	In TCP, if the ACK value is 200, then byte _____ has been received

	successfully.
Option A:	199
Option B:	200
Option C:	201
Option D:	202
15.	The second phase of JPEG compression process is _____.
Option A:	DCT transformation
Option B:	Quantization
Option C:	lossless compression encoding
Option D:	None of the choices are correct.
16.	During an FTP session the data connection may be opened _____.
Option A:	only once
Option B:	only two times
Option C:	Five times
Option D:	as many times as needed
17.	The protocol data unit (PDU) for the application layer in the Internet stack is _____.
Option A:	segment.
Option B:	datagram.
Option C:	message.
Option D:	frame.
18.	A table of a router normally contains addresses belonging to _____ protocol.
Option A:	a single
Option B:	Two
Option C:	Three
Option D:	multiple
19.	The first address assigned to an organization in classless addressing _____.
Option A:	must be a power of 2
Option B:	must be a power of 4
Option C:	must belong to one of the A, B, or C classes
Option D:	must be evenly divisible by the number of addresses
20.	An organization is granted a block of classless addresses with the starting address 199.34.32.0/27. How many addresses are granted?
Option A:	4
Option B:	8
Option C:	16
Option D:	32
<b>Q2.</b>	<b>Solve any Two out of Three</b> <b>10 marks each</b>
A	Explain the OSI Model in brief with suitable figure
B	What is a sliding window? Explain Go back N protocol in detail
C	What do you mean by switching? What are the types of switching techniques

<b>Q3.</b>	<b>Solve any Two out of Three</b>	<b>10 marks each</b>										
A	What is congestion and what are causes of congestion?											
B	Compare TCP and UDP.											
C	Consider five source symbols of a discrete memory less source. Their probabilities are given below. Find the Huffman code for each symbol. <div><table><tr><td>Symbol</td><td>M1</td><td>M2</td><td>M3</td><td>M4</td></tr><tr><td>probability</td><td>0.4</td><td>0.3</td><td>0.2</td><td>0.1</td></tr></table></div>		Symbol	M1	M2	M3	M4	probability	0.4	0.3	0.2	0.1
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