



# COMPUTER NETWORKS

Final 2023  
(Solved)



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## Choose the correct answer:

1.	_____ is used to detect tampering/changing of message contents, and to identify the originator of a message.							
	a)	Access control	b)	Authentication	c)	Digital signatures	d)	Firewall
2.	_____ is the network that physically connects an end system to the first router.							
	a)	Access network	b)	Internet	c)	Network core	d)	Wired network
3.	The best description of OSPF routing protocol is _____.							
	a)	inter-AS routing	b)	DV based	c)	link state-based	d)	all are true
4.	In a router, _____ is the rate at which packets can be transfer from input to output links.							
	a)	switching rate	b)	transmission rate	c)	propagation rate	d)	None of them
5.	_____ is the highest level of the DNS hierarchy and knows how to reach servers responsible for a given domain							
	a)	DNS root servers	b)	Local DNS server	c)	Authorization DNS server	d)	TLD servers
6.	"Receiving a segment from the network layer, extracting the data and delivering it to the correct socket." is _____ process							
	a)	demultiplexing	b)	multiplexing	c)	encapsulation	d)	None of them
7.	In the router _____, the destination IP address is looked up in a forwarding table to determine the appropriate output port.							
	a)	switching fabric	b)	routing processor	c)	Input port	d)	output port
8.	_____ field contains the index in the byte stream of the next in-order byte expected at the receiver.							
	a)	Receiver advertised window	b)	Sequence number	c)	ACK number	d)	ACK bit
9.	An example of top level domain is _____.							
	a)	.org DNS	b)	user defined DNS	c)	Root DNS	d)	None
10.	How many RTTs are there in the interval from a client's first contact to an email server by initiating a TCP session till the client can begin sending the email message itself? _____							
	a)	1	b)	2	c)	3	d)	4
11.	The best description of BGP routing protocol is _____.							
	a)	inter-AS routing	b)	provide max security	c)	the routing is done among the same AS	d)	all are true
12.	_____ protocol supports multiple objects to be sent in a multi part message.							
	a)	POP3	b)	DNS	c)	SMTP	d)	IMAP
13.	HTTP response codes for bad request is _____							
	a)	400	b)	404	c)	505	d)	200
14.	To browse your e-mail inbox, the following protocol should run _____.							
	a)	OSPF	b)	SMTP	c)	IMAP	d)	RPF
15.	DNS cache poisoning is a type of _____ attacks							
	a)	Spoofing	b)	DDoS	c)	DoS	d)	All are true



16.	Caching DNS is done on the level of _____.			
	a)	root DNS	b)	<b>Local DNS</b>
	c)	TLD DNS	d)	authoritative DNS
17.	Caching DNS can be used for _____.			
	a)	speed up connectivity	b)	maximize network efficiency
	c)	security	d)	<b>all are true</b>
18.	UDP socket number identified by _____.			
	a)	source & destination port numbers		
	b)	source & destination IP address		
	c)	<b>destination IP address &amp; port number</b>		
	d)	source IP address & port number		
19.	What are the transport services provided to an application by TCP? _____			
	a)	Best effort service	b)	Throughput guarantee
	c)	<b>Congestion control</b>	d)	Real-time delivery
20.	Consider a circuit-switched network with four circuit switches A, B, C and D. Suppose there are 20 circuits between A and B, 15 circuits between B and C, 15 circuits between C and D, and 10 circuits between D and A. What is the maximum number of connections that can be ongoing in the network at any one time? _____			
	a)	20	b)	50
	c)	10	d)	<b>60</b>
21.	_____ is used by hosts and routers to communicate network-level information.			
	a)	IPv6	b)	<b>ICMP</b>
	c)	SMTP	d)	IMAP
22.	The internet best effort service model provides _____.			
	a)	Successful datagram delivery bandwidth	b)	order of delivery
	c)	<b>no guarantees on data loss</b>	d)	guarantees on bandwidth
23.	To check the correctness of data received, _____ is used.			
	a)	ACK	b)	<b>Checksum</b>
	c)	Socket number	d)	Port number
24.	In the case of _____ congestion control approach, the sender infers segment loss from the absence of an ACK from the receiver.			
	a)	network-assisted	b)	<b>end-end</b>
	c)	None of them	d)	Both of them
25.	What is true about IP datagram fragmentation? _____			
	a)	It is a need when the packet size exceeds MTU of the link.		
	b)	reassembly is done at final destination only.		
	c)	IP header is used to order the fragments.		
	d)	<b>all are true.</b>		
26.	_____ is a message indicating that the sending side is initiating the protocol to terminate a connection.			
	a)	FINACK message	b)	SYN message
	c)	<b>FIN message</b>	d)	SYNACK message



27.	Which of the following are changes between HTTP 1.1 and HTTP/2? _____			
a)	<b>HTTP/2 allows objects in a persistent connection to be sent in a client-specified priority order.</b>			
b)	HTTP/2 provides enhanced security by using transport layer security.			
c)	HTTP/2 has many new HTTP methods and status codes.			
d)	all of them			
28.	The _____ is the time needed to perform an integrity check, lookup packet information in a local table and move the packet from an input link to an output link in a router.			
a)	Queuing delay	b)	Transmission delay	c) Propagation delay
d)	<b>Processing delay</b>			
29.	_____ demultiplexing is using 4-tuple: source and destination IP addresses and port numbers.			
a)	UDP	b)	<b>TCP</b>	c) Both of them
d)	None of them			
30.	_____ is used to provide e-mail web based interface.			
a)	DNS	b)	SMTP	c) IMAP
d)	<b>HTTP</b>			



## True/False:

1.	In global routing protocols, all routers have complete topology and link cost information.	T
2.	ACK bit field contains the number of available bytes in the TCP receiver's buffer. (next expected)	F
3.	Checksum field is found in TCP header only. (TCP and UDP)	F
4.	DNS Flooding attack an intercept DNS queries, returning bogus replies.(DNS spoofing)	F
5.	When computing the internet checksum for two numbers, a single flipped bit will always result in a changed checksum.	T
6.	The statement "HTTP is stateless" means that: An HTTP client does not remember anything about what happened during earlier steps in interacting with any HTTP server. (server)	F
7.	Socket number is resolved at application layer. (Transport)	F
8.	FTP packets are transmitted using UDP. (TCP)	F
9.	FTP sends its control information in-band. (out-band)	F
10.	FDM and TDM are two approaches for implementing circuit switching.	T
11.	A cookie is a code used by a server to access information the server had earlier stored about an earlier intersection with this Web browser.	T
12.	RPF protocol is used to control flooding through networks.	T
13.	In broadcast routing, the goal is finding the tree(s) connecting routers having local multicast group members. (multicast)	F
14.	ICMP is a network layer protocol.	T
15.	Recursive DNS query is not appreciated since it overloads local DNS. (are appreciated)	F
16.	RTT of TCP is equal to RTT of UDP. (higher than)	F
17.	UDP can provide congestion control service. (TCP)	F
18.	The distributed applications involve multiple hosts that exchange data with each other.	T
19.	It is possible for two UDP segments to be sent from the same socket with source port 5723 at a server to two different clients.	T
20.	The sequence number field contains the index of the first byte in the segment data.	T
21.	Internet applications run in the packet switches in the network core. (end systems)	F
22.	Link state is an example of dynamic decentralized routing protocol. (Global)	F
23.	TLD servers responsible for a domain and knows how to contact authoritative name servers.	T
24.	Multiplexing process uses header info to deliver received segments to correct socket.(demultiplexing)	F
25.	Forwarding is the global action of moving arriving packets from router's unput link to appropriate router output link. (Local)	F
26.	DV is considered static and global routing protocol. (dynamic decentralized)	F
27.	Applications with P2P architectures have client processes & server processes.	T
28.	Control connection has a port number of 21.	T
29.	The type "A" resource record holds "a hostname and an IP address" in the DNS database.	T
30.	Congestion control is needed if the arrival rate exceeds output link capacity.	T

