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UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, July 2020

Course: Data Communication and Computer Network **Semester:** IV

Course Code: CSEG2009 **Time:** 2:00PM-4:00PM

Programme: B. Tech. CSE BigData **Max. Marks:** 60

Instructions: There are 60 questions. Each carries equal marks

MC	Which layer devices can be used to enlarge the area covered by a single LAN segment? 1. Switch 2. NIC 3. Hub 4. Repeater RJ45 transceiver	1 only	Incorrect	1 and 3	Incorrect	3 and 4	Correct	5 only	Incorrect
MC	Routers operate at layer _____. LAN switches operate at layer _____. Ethernet hubs operate at layer _____. Word processing operates at layer _____.	3, 3, 1, 7	Incorrect	3, 2, 1, none	Correct	3, 2, 1, 7	Incorrect	3, 3, 2, none	Incorrect
MC	Which of the following describe router functions?	Packet switching	Incorrect	Packet filtering	Incorrect	Internetwork communication	Incorrect	All of the above	Correct
MC	A receiving host has failed to receive all of the segments that it should acknowledge. What can the host do to improve the reliability of this communication session?	Send a different source port number.	Incorrect	Restart the virtual circuit.	Incorrect	Decrease the sequence number.	Incorrect	Decrease the window size.	Correct
MC	What are the decimal and hexadecimal equivalents for the binary number 10110111?	69/0x2102	Incorrect	183/B7	Correct	173/A6	Incorrect	83/0xC5	Incorrect
MC	What is the purpose of flow control?	To ensure that data is retransmitted if an acknowledgment is not received.	Incorrect	To reassemble segments in the correct order at the destination device.	Incorrect	To provide a means for the receiver to govern the amount of data sent by the sender.	Correct	To regulate the size of each segment.	Incorrect
MC	Which of the following are types of flow control? 1. Buffering 2. Cut-through 3. Windowing 4. Congestion avoidance	1 and 2	Incorrect	1, 3 and 4	Correct	2 only	Incorrect	3 only	Incorrect
MC	What are two purposes for segmentation with a bridge? 1. To add more broadcast domains. 2. To create more collision domains. 3. To add more bandwidth for users. 4. To allow more broadcasts for users.	1 only	Incorrect	2 and 3	Correct	2 and 4	Incorrect	4 only	Incorrect
MC	Let G(x) be the generator polynomial used for CRC checking. What is the condition that should be satisfied by G(x) to detect odd number of bits in error?	(A) G(x) contains more than two terms	Incorrect	(B) G(x) does not divide $1+x^k$, for any k not exceeding the frame length	Incorrect	(C) $1+x$ is a factor of G(x)	Correct	(D) G(x) has an odd number of terms.	Incorrect
MC	Frames of 1000 bits are sent over a 10^6 bps duplex link between two hosts. The propagation time is 25ms. Frames are to be transmitted into this link to maximally pack them in transit (within the link). What is the minimum number of bits (i) that will be required to represent the sequence numbers distinctly? Assume that no time gap needs to be given between transmission of two frames.	i=2	Incorrect	i=3	Incorrect	i=4	Incorrect	i=5	Correct

MC	Which of the following transport layer protocols is used to support electronic mail?	SMTP	Incorrect	IP	Incorrect	TCP	Correct	UDP	Incorrect
MC	The address of a class B host is to be split into subnets with a 6-bit subnet number. What is the maximum number of subnets and the maximum number of hosts in each subnet?	62 subnets and 262142 hosts.	Incorrect	64 subnets and 262142 hosts.	Incorrect	62 subnets and 1022 hosts.	Correct	64 subnets and 1024 hosts.	Incorrect
MC	Suppose to transmit a bit stream 10011101 CRC is used and the generator polynomial used is x^3+1 . The actual bit transmitted is:	10011101000	Incorrect	10011101100	Correct	10011101111	Incorrect	1011101101	Incorrect
MC	A binary value 10101111 is encoded using Hamming codes considering even parity. What is the transmitted codeword?	101001001111	Correct	111001001111	Incorrect	11001001111	Incorrect	10100101111	Incorrect
MC	Which of the following types of connections can use full duplex? 1. Hub to hub 2. Switch to switch 3. Host to host 4. Switch to hub 5. Switch to host	1, 2 and 4	Incorrect	3 and 4	Incorrect	3 and 5	Incorrect	2, 3 and 5	Correct
MC	(P) SMTP (1) Application layer (Q) BGP (2) Transport layer (R) TCP (3) Data link layer (S) PPP (4) Network layer	P-2 Q-1 R-3 S-5	Incorrect	P-1 Q-4 R-2 S-3	Correct	P-1 Q-4 R-2 S-5	Incorrect	P-2 Q-4 R-1 S-3	Incorrect
MC	An organization has a class B network and wishes to form subnets for 64 departments. The subnet mask would be:	255.255.0.0	Incorrect	255.255.64.0	Incorrect	255.255.128.0	Incorrect	255.255.252.0	Correct
MC	Determine the maximum length of the cable (in km) for transmitting data at a rate of 250 Mbps in an Ethernet LAN with frames of size 10,000 bits. Assume the signal speed in the cable to be 2,00,000 km/s.	1	Incorrect	4	Correct	2.5	Incorrect	5	Incorrect
MC	In one of the pairs of protocols given below, both the protocols can use multiple TCP connections between the same client and the server. Which one is that?	HTTP, TELNET, POP	Incorrect	HTTP, FTP	Correct	FTP, SMTP	Incorrect	HTTP, SMTP	Incorrect
MC	Host A sends a UDP datagram containing 4440 bytes of user data to host B over an Ethernet LAN. Ethernet frames may carry data up to 1500 bytes (i.e. MTU = 1500 bytes). Size of UDP header is 6 bytes and size of IP header is 20 bytes. There is no option field in IP header. How many total number of IP fragments will be transmitted and what will be the contents of offset field in the last fragment?	3 and 1480	Correct	3 and 7400	Incorrect	7 and 1110	Incorrect	7 and 8880	Incorrect
MC	Which are considered the methods of NAT? 1. Static 2. IP NAT pool 3. Dynamic 4. NAT double-translation 5. Overload	1 and 5	Incorrect	3 only	Incorrect	1, 3 and 5	Correct	None	Incorrect
MC	If the Spanning Tree Protocol is not running on your switches and you connect them together with redundant links, you will have broadcast storms and multiple frame copies. If you want to disable STP on a port connected to a server, which command would you use?	disable spanning-tree	Incorrect	spanning-tree off	Incorrect	spanning-tree security	Incorrect	spanning-tree portfast	Correct
MC	What is the subnet address for a host with the IP address 200.10.5.68/28?	200.10.5.58	Incorrect	200.10.5.33	Incorrect	200.10.5.64	Correct	200.10.5.1	Incorrect

MC	Suppose that a message 1001 1100 1010 0011 is transmitted using Internet Checksum (4-bit word). What is the value of the checksum?	1111	Incorrect	1101	Incorrect	1100	Correct	None of these	Incorrect
MC	The Domain Name System (DNS) network service uses which transport layer protocol?	IP	Incorrect	UDP	Correct	TCP	Incorrect	HTTP	Incorrect
MC	Which is a valid IP address?	191.1.257.2	Incorrect	129.42.67.1	Correct	0.1.2	Incorrect	A9:97:6D:4F:H6	Incorrect
MC	Which octet of the subnet mask 255.255.255.0 will tell the router the corresponding host ID?	First	Incorrect	Second	Incorrect	Third	Incorrect	Last	Correct
MC	If a TCP socket is ready and listening for incoming connections, it's in the _____ state	Established	Incorrect	Close_wait	Incorrect	Syn_Sent	Incorrect	Listen	Correct
MC	A Transmission Control Protocol (TCP) connection is in working order and both sides can send each other data. What is the TCP socket state?	SYN_RECEIVED	Incorrect	SYN_SENT	Incorrect	ESTABLISHED	Correct	LISTEN	Incorrect
MC	A communication between two devices is over the maximum limit of an ethernet frame size. The Transmission Control Protocol (TCP) splits up the data into segments. Which field in the header helps keep track of the many segments?	Checksum	Incorrect	Sequence number	Correct	Urgent pointer	Incorrect	Acknowledgement number	Incorrect
MC	Which protocol does Ping use?	TCP	Incorrect	ICMP	Correct	ARP	Incorrect	BootP	Incorrect
MC	ICMP is the protocol that is used to send echo requests and replis.At which layer of OSI	Transport	Incorrect	Physical	Incorrect	Network	Correct	Datalink	Incorrect
MC	You want to improve network performance by increasing the bandwidth available to hosts and limit the size of the broadcast domains. Which of the following options will achieve this goal?	Managed hubs	Incorrect	Switches	Incorrect	Bridges	Incorrect	Switches configured with VLANs	Correct
MC	If you use either Telnet or FTP, which is the highest layer you are using to transmit data?	Session	Incorrect	Presentation	Incorrect	Application	Correct	Network	Incorrect
MC	If an Ethernet port on a router were assigned an IP address of 172.16.112.1/25, what would be the valid subnet address of this host?	172.16.112.0	Correct	172.16.0.0	Incorrect	172.16.96.0	Incorrect	172.16.255.0	Incorrect
MC	If your routing table has a static, a RIP, and an IGRP route to the same network, which route will be used to route packets by default?	Any available route	Incorrect	RIP route	Incorrect	Static route	Correct	IGRP route	Incorrect
MC	What does a switch do when a frame is received on an interface and the destination hardware address is unknown or not in the filter table?	Forwards the switch to the first available link	Incorrect	Drops the frame	Incorrect	Floods the network with the frame looking for the device	Correct	Sends back a message to the originating station asking for a name resolution	Incorrect
MC	The ability for a protocol or program to determine that something went wrong is known as.	Redundency	Incorrect	Error detection	Correct	Data Verification	Incorrect	Data Resilience	Incorrect
MC	An organization responsible for assigning individual domain names to other organizations or individuals is known as a(n) .	Internet authority	Incorrect	DNS Registrar	Correct	Autonomous system	Incorrect	Government	Incorrect
MC	For all IPv6 addresses, the network ID is always the first _____ bits.	16	Incorrect	32	Incorrect	64	Correct	128	Incorrect
MC	As an IT decision maker, you plan to satisfy business needs by using software as a service. Which option do you deploy?	Windows server 2019	Incorrect	Virtual Firewall	Incorrect	Office365	Correct	Linux workstation	Incorrect
MC	During a traceroute, which action does a router perform to the value in the Time To Live (TTL) field?	Addition	Incorrect	Substraction	Correct	Multiplication	Incorrect	Division	Incorrect
MC	Which Internet Protocol (IP) v6 field is identical in purpose to the TTL field in an IPv4 header?	Flow label	Incorrect	Hop Limit	Correct	Next header	Incorrect	Traffic Class	Incorrect
MC	When shortening an Internet Protocol (IP) v6 address, which two rules are used? Check all that apply.	Removing all leading zeros	Incorrect	Replace group of zeros with colons	Correct	No replacement	Incorrect	None	Incorrect

MC	Which one of the following allows client to update their DNS entry as their IP address change?	Dynamic DNS	Correct	authoritative name server	Incorrect	mail transfer agent	Incorrect	none of the mentioned	Incorrect
MC	Which of the following statements is NOT true concerning VPNs?	Financially rewarding compared to leased lines	Incorrect	allows remote workers to access corporate data	Incorrect	Allows LAN-to-LAN connectivity over public networks	Incorrect	Is the backbone of the Internet	Correct
MC	A device that knows how to forward traffic between independent networks is known as a ____.	Router	Correct	Switches	Incorrect	Hub	Incorrect	Repeater	Incorrect
MC	The technique that allows you to have multiple logical LANs operating on the same physical equipment is known as a ____.	Collision Domain	Incorrect	Datalink Layer	Incorrect	VLAN	Correct	Protocol	Incorrect
MC	The first part of an Ethernet frame is known as the	Frame check sequence	Incorrect	Data packet	Incorrect	MAC Address	Incorrect	None	Correct
MC	A user has multiple web pages open and is using email. Which layer of the Transmission Control Protocol/Internet Protocol (TCP/IP) model is responsible for sorting the data to send email and web pages to the appropriate location?	Data Link	Incorrect	Transport	Correct	Application	Incorrect	Network	Incorrect
MC	In open-loop control, policies are applied to	Remove after congestion occurs	Incorrect	Remove after sometime	Incorrect	Prevent before congestion occurs	Correct	Prevent before sending packets	Incorrect
MC	If DHCP snooping is configured on a LAN switch, then clients having specific _____ can access the network.	MAC address	Incorrect	IP address	Incorrect	Both MAC address and IP address	Correct	None of the mentioned	Incorrect
MC	Which one of the following is not an application layer protocol?	media gateway protocol	Incorrect	dynamic host configuration protocol	Incorrect	resource reservation protocol	Correct	session initiation protocol	Incorrect
MC	What protocol is used to find the hardware address of a local device?	RARP	Incorrect	IP address	Incorrect	ARP	Correct	ICMP	Incorrect
MC	A host with IP Address 200.100.1.1 wants to send a packet to all the hosts in the same network.What will be-Source IP Address and Destination IP Address	200.100.1.1 255.255.255.255	Correct	100.100.2.2. 255.255.1.1	Incorrect	100.1.2.3 200.1.1.1	Incorrect	None	Incorrect
MC	To test the IP stack on your local host, which IP address would you ping?	127.0.0.0	Incorrect	1.0.0.127	Incorrect	127.0.0.1	Correct	127.0.0.255	Incorrect
MC	With which network type will OSPF establish router adjacencies but not perform the DR/BDR election process?	Point-to-point	Correct	Backbone area 0	Incorrect	Broadcast multi-access	Incorrect	Non-broadcast multi-access	Incorrect
MC	In the network HTTP resources are located by	uniform resource identifier	Correct	unique resource locator	Incorrect	unique resource identifier	Incorrect	union resource locator	Incorrect
MC	HTTP client requests by establishing a _____ connection to a particular port on the server.	user datagram protocol	Incorrect	transmission control protocol	Correct	border gateway protocol	Incorrect	domain host control protocol	Incorrect
MC	_____ is the multiplexing technique that shifts each signal to a different carrier frequency.	FDM	Correct	TDM	Incorrect	FDM and TDM	Incorrect	PDM	Incorrect