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Enrolment No:	
UNIVERSITY OF PETROLEUM AND ENERGY STUDIES	
End Semester Examination, July 2020	
Course: Data Communication and Computer Networks	Semester: IV
Course Code: CSEG 2009	Time: 2 Hrs.
Programme: B Tech (CSE+AI&ML)	Max. Marks: 100
Total questions-60	
Instructions: Attempt All Questions	

1. Which of the following is an example of a Layer-4 protocol?

- (a) Ethernet (b) IP (c) P2P (d) TCP **Correct**

2. State the following statement is true or false.

i) In Class B addresses a total of more than 1 billion addresses can be formed.

ii) Class E addresses are reserved for future or experimental use

- (a) "True, False" (b) "True, True" **Correct** (c) "False, True" (d) "False, False"

3. A device that knows how to forward data between two LAN segments

- (a) Bridge **Correct** (b) Switch (c) Router (d) Hub

4. Which of the Statement not accurately describes the differences between a hub and switch.?

- (a) Hubs are more sophisticated versions of switches **Correct**

(b) Hubs work on the physical layer while switch works on data link layer

(c) Hub causes larger collision domains

(d) A switch remembers which devices are connected on each interface, while a hub does not.

5. In the IPv4 addressing format, the number of networks allowed under Class C addresses is

- (a) 2^7 (b) 2^{24} (c) 2^{21} **Correct** (d) 2^{14}

6. Which of the listed standards is not a part of IEEE 802.11 physical layer.

- (a) 802.11a (b) 802.11n (c) 802.11b (d) 802.11x **Correct**

7. Connection-oriented service at transport layer is provided by _____

(a) **TCP Correct** (b)UDP (c) IP (d) IPX

8. Match the following IEEE no to their corresponding Name for IEEE 802 standards for LANs.

i) 802.3 a) WiFi

ii) 802.11 b) WiMa

iii) 802.15.1 c) Ethernet

iv) 802.16 d) Bluetooth

(a) "i-b, ii-c, iii-d, iv-a" (b)"i-c, ii-d, iii-a, iv-b" (c) **"i-c, ii-a, iii-d, iv-b" Correct**

(d) "i-b, ii-d, iii-c, iv-a"

9. In a Go-Back-N ARQ, if the window size is 63, what is the range of sequence numbers?

(a) 1 to 64 (b)1 to 63 (c) 0 to 64 (d) **0 to 63 Correct**

10. The transport layer protocols used for real-time multimedia, DNS, email and file transfer, respectively are:

(a) **UDP,UDP,TCP,TCP Correct** (b)TCP,UDP,UDP,TCP (c) TCP,UDP,TCP,UDP

(d) UDP,TCP,UDP,TCP

11. Which of the following is right about UDP in the transport layer?

(a)It does three-way handshake before sending datagrams

(b)Node to node delivery of data

(c)Connection oriented protocol

(d)**Works well in unidirectional communication and suitable for broadcast information. Correct**

12. Which of the following field in IPv4 datagram is not related to fragmentation?

(a)Flags (b)Offset (c)Identifier (d)**ToS Correct**

13. "If a class B network on the Internet has a subnet mask of 255.255.254.0, what is the maximum number of hosts per subnet?"

(a) **510 Correct** (b)1024 (c) 512 (d) 2046

14. If Direct Broadcast Address of the subnet is 198.20.120.63. Which of the following will be a subnet mask ?

(a)255.255.255.241 (b)**255.255.255.192 Correct** (c)255.255.255.198 (d) 255.255.255.224
Incorrect

15. What is the first address of a block of classless addresses if one of the addresses is 12.2.2.76/27?

- (a)12.2.2.0 (b)12.2.2.32 (c)**12.2.2.64 Correct** (d)None

16. The total length field defines the total length of the datagram _____

- (a) **Including the header Correct** (b)excluding the header (c) header and option length (d)None

17. Same session packets can be routed through various paths in

- (a) TCP, but not UDP (b)**TCP and UDP Correct** (c) UDP, but not TCP
(d) Neither TCP nor UDP

18. The _____ module discards datagrams with a TTL value of zero.

- (a) **Forwarding Correct** (b)Processing (c) Fragmentation (d)None

19. "To deliver a message to the correct application program running on a host, the _____ address must be consulted."

- (a)Physical address (b)MAC (c) IP (d)**Port Correct**

20. "You want to implement a mechanism that automates the IP configuration, including IP address, subnet mask, default gateway, and DNS information. Which protocol will you use to accomplish this?"

- (a) **DHCP Correct** (b)SMTP (c)SNMP (d)ARP

21. The minimum size of process data that can be encapsulated in a UDP datagram would be

- (a) 20 Byte (b)28 Byte (c) **4 Byte Correct** (d) 8 byte

22. Above the network layer protocol, what of the following features does a transport protocol implement?

- (a) **End to end connectivity Correct** (b)Recovery from packet losses
(c)Detection of duplicate packets (d)Packet delivery in the correct order

23. Which of the services used by TCP?

- (a) "DHCP, SMTP" (b)**"SMTP, HTTP, FTP" Correct** (c)"DHCP, SMTP, TFTP" (d) "DHCP, HTTP, TFTP"

24. "SNMP is important for message formation, called a"

- (a) **Get Request message Correct** (b) encoded message (c) senders display message
(d)Encrypted message

25. If the IP address of the system is 193.116.86.44 & subnet mask is 255.255.255.52. Calculate 1st host of the last subnet.

- (a) 193.116.86.59 (b)193.116.86.52 (c)193.116.86.64 (d) **193.116.86.49 Correct**

26. One of the addresses in a block is 17.63.110.114 / 20. Find the number of address

(a) 128 (b)132 (c)120 (d) **None of the above Correct**

27 Consider the following statements.

A. TCP connections are message streams

B. TCP connections are full-duplex.

C. TCP has no option for selective acknowledgment

(a) **Only B is correct Correct** (b)Only A & B are correct (c) All are correct

(d) All are incorrect

28 If the bandwidth is 1 Mbps and the frame size is 100 bits. How many frames are transmitted in a round trip time 100msecs.

(a) **1000 frames Correct** (b)1100 frames (c) 1200 frames (d) 900 frames

29. In Go Back N ARQ if sequence bits are taken as 6, then what is the sender window size and receiver window size?

(a) **S=63, R= 1 Correct** (b)S=63, R= 6 (c) S=64, R= 6 (d)S=64, R= 1

30. If bandwidth = 10Mbps and Round trip time (RTT) = 1000 micro secs, frame size = 100 bits. Calculate the no. of sequence bits used in selective repeat ARQ to transmit the data in RTT.

(a) **8 Correct** (b)6 (c) 4 (d) 10

31. Identify the proper order in which a Web browser and a Web server communicate with the following behaviour.

A. The web browser requests a webpage using HTTP.

B. The web server sends the requested webpage using HTTP.

C. The web browser establishes a TCP connection with the webserver.

D. The web browser resolves the domain name using DNS.

(a) **D,C,A,B Correct** (b) A,B,C,D (c) D,A,B,C (d) B,C,A,D

32. Concept of Interframe Space (IFS) is used in:

(a)Slotted Aloha (b) CSMA/CD (c)**CSMA/CA Correct** (d) All of these

33. Both the protocols that use multiple TCP connections between the same client and the server in one of the protocol pairs given below. What one is it?

(a)**HTTP,FTP Correct** (b)HTTP,TELNET (c) FTP,SMTP (d)HTTP,SMTP

34. Which of these is not a noisy channel flow control protocol?

- (a) **Stop and Wait Protocol Correct** (b) Stop and Wait ARQ (c) Go Back N
(d) Selective Repeat Incorrect

35. Which one of the following media is multidrop?

- (a) Shielded Twisted pair cable (b) Unshielded Twisted pair cable (c) Fiber Optic cable
(d) **Thick Coaxial cable Correct**

36. A circuit switching network consists of devices attached by physical connections, through which each link is separated into_____

- (a) **n Channels Correct** (b) n+1 channels (c) 2n Channels (d) n-1 Channels

37. Addressing (Global and Local) are types of

- (a) WAN Network (b) Local area circuit network (c) **Virtual circuit network Correct**
(d) MAN Network

38. Within a datagram network switch uses a routing table based on the_____

- (a) **Destination address Correct** (b) Source addresses (c) Port addresses (d) None

39. The network where no resource is reserved is called_____

- (a) Message switched network (b) Circuit-switched network (c) **Packet switched network Correct**
(d) Satellite network

40. Hypertext transfer protocol (HTTP) support

- (a) **Proxy server Correct** (b) Proxy domain (c) Proxy document (d) Proxy IP

41. The parameter that is normally achieved through a trailer added to the end of the frame is

- (a) Access control (b) Flow control (c) **Error control Correct** (d) Physical addressing

42. The domain which is used to map an address to a name is called_____

- (a) Generic domains (b) Main domains (c) Sub-domains (d) **Inverse domain Correct**

43. The term that defines registered hosts according to their generic behavior is called

- (a) **Generic domains Correct** (b) Main domains (c) Sub-domains (d) Super-domains

44. In FTP, while the control connection is open, the data connection can be opened and closed

- (a) One time (b) Several times (c) **Not even Once Correct** (d) None of the given

45. Consider the following message M= 1100101010, the cyclic redundancy check (CRC) for the message using the divisor polynomial bit 110101

(a)10110 (b)11110 (c)10101 (d)**11001** **Correct**

46. The address resolution protocol (ARP) is used for

- (a) Finding the IP address from the DNS
- (b) Finding the IP address of the default gateway
- (c) Finding the IP address that corresponds to a MAC address
- (d) **Finding the MAC address that corresponds to an IP address** **Correct**

47. A 4 km long broadcast LAN has 10^5 bps bandwidth and uses CSMA/CD. The signal travels along the wire at 2×10^6 m/s. What is the minimum packet size that can be used on this network?

- (a) **50 bytes** **Correct** (b)100 bytes (c) 200 bytes (d) 25 bytes

48. A bit-stuffing based framing protocol uses an 8-bit delimiter pattern of 01111110. If the output bit-string after stuffing is 01111100101, then the input bit-string is

- A. 0111110100 **B. 0111110101** **Correct** C. 0111111101 D. 0111111111

49. What does the port number in a TCP connection specify?

- (a) **It specifies the communication process on the two end systems** **Correct**
- (b) It specifies the quality of the data & connection
- (c) It specifies the size of data
- (d) All of the above

50. Which of the following is correct in CIDR?

- (a) There are only two networks
- (b) There are high & low-class network
- (c) **There is no concept of class A, B, C networks** **Correct**
- (d) Class A includes Class B network

51. If IP address of a system is 24.31.13.16. Calculate the Network Id.

- (a) **24.0.0.0** **Correct** (b)24.255.0.0 (c)24.255.255.0 (d) 255.255.255.0

52. Routing tables of a router keeps track of

- (a) **Routes to use for forwarding data to its destination** **Correct**
- (b) Distribute IP address to network devices
- (c) Port Assignments to network devices

(d) MAC Address Assignments

53. The meaning of Straight-through Cable is

(a) Four wire pairs not twisted with each other

(b) **The cable which is not twisted** **Correct**

(c) The cable Which Directly connects Computer to Computer

(d) Four wire pairs connect to the same pin on each end

54. Which one is not a characteristic of BGP?

(a) Support for CIDR (b)Runs over TCP (c)Path information

(d) **None of the above** **Correct**

55. How large is the size of data to be moved to below the TCP layer by the application layer?

(a)1500B (b)1600B (c)1800B (d) **None of the above** **Correct**

56. There are bi-directional links between each possible node. Which network topology is used for it?

(a) Ring (b) Star (c)Tree (d) **Mesh** **Correct**

57. Which propagation is used if the Signals with a frequency is lower than 2 MHz.

(a) line-of-sight (b) sky (c) **Ground** **Correct** (d) None of the above

58. Throughput of slotted aloha is $S = G \times e^{-G}$, where G is:

(a) Average propagation time per frame (b) Average transmission time of a frame

(c) **Average no. of frames generated** **Correct** (d) Back off Time

59. Suppose that a message 1100 1000 1001 0001 is transmitted using Internet Checksum (4-bit word). What is the value of the checksum?

(a) 1111Incorrect (b)1101 (c) 1011 (d) **None of these** **Correct**

60. The Hamming distance between 01101010 and 11011011 is _____.

(a) **4** **Correct** (b) 3 (c) 5 (d) 1