Roll Number

Narula Institute of Technology
An Autonomous Institute under MAKAUT
2024
END SEMESTER EXAMINATION - EVEN 2024
CS601 - COMPUTER NETWORK

TIME ALLOTTED: 3Hours   **FULL MARKS: 70**

Instructions to the candidate:

Figures to the right indicate full marks.
Draw neat sketches and diagram wherever is necessary.
Candidates are required to give their answers in their own words as far as practicable

Group A
(Multiple Choice Type Questions)
Answer any ten from the following, choosing the correct alternative of each question: 10×1=10

1.i) Which protocol does Ping use?   (1)   CO1   BL1
a) BootP
b) ICMP
c) ARP
d) TCP

1.ii) The total number of links required to connect n devices using Mesh   (1)   CO1   BL1
   Topology is
a) n(n-1)/2
b) 2n
c) n(n+1)/2
d) None of the above

1.iii) Which detection method can detect a single bit error?   (1)   CO1   BL1
a) 2-D parity check
b) CRC
c) Simple parity check
d) all of these

1.iv) Which layer offers mail services and directory services to user in   (1)   CO1   BL1
   network?
a) Session
b) Data link
c) Transport
d) Application

1.v) Which of the following is an interior routing protocol?   (1)   CO1   BL1
a) RIP
b) OSPF
c) BGP
d) Both a and b

1.vi) The length of address field in IPv4 is   (1)   CO1   BL1
a) 32 bits
b) 48 bits
c) 64 bits
d) 256 bits

1.vii) Identify the class of IP address 172.16.52.63   (1)   CO1   BL1
a) A
b) B
c) C
d) D

1.viii) Which layer is responsible for port-to-port delivery of packets?   (1)   CO1   BL1
a) Transport layer
b) Data link layer
c) Physical layer
d) Network layer

1.ix) Which class of IP address provides a maximum of only 254 host   (1)   CO1   BL1
      addresses per network ID?
a) Class A
b) Class B
c) Class C
d) Class D

1.x) Total no of flag bits in a TCP header is   (1)   CO1   BL1
a) 4
b) 3
c) 8
d) 6

1.xi) Simplex, half-duplex and full-duplex are defined in   (1)   CO1   BL1
a) Network Topology
b) Line configuration
c) Network Categories
d) Transmission modes

1.xii) Which of the following statement is true: (1)   CO1   BL1
a) IP datagram is a payload for TCP segment
b) TCP segment does not have any payload.
c) TCP segment is a payload for IP datagram
d) Niether of the above

Group B
(Short Answer Type Questions)
(Answer any three of the following) 3x5=15

2. Compare between hub, switch and router.   (5)   CO1   BL3

3. Show how is the Slotted ALOHA throughput is almost twice than   (5)   CO1   BL3
    pure ALOHA?

4. Discuss piggybacking with proper diagram.	(5)	CO1	BL3
5. Explain IPv4 datagram format with suitable diagram.	(5)	CO1	BL4
6. Explain ARP packet format with suitable diagram.	(5)	CO1	BL3

Group C
(Long Answer Type Questions)
(Answer any three of the following) 3x15=45

7. Answer all the questions:	(15)		
a) In an organization given Net Id 192.138.15.0. Now we have to create four subnets. Calculate no of usable host for each subnet, subnet id, broadcast address and subnet masking for each subnet.	(8)	CO1	BL4
b) Explain Distance Vector Routing with a suitable example.	(4)	CO1	BL3
c) Briefly discuss any two techniques to improve Quality of services.	(3)	CO1	BL3
8. Answer the following questions:	(15)		
a) Explain Ethernet frame format with proper diagram.	(5)	CO1	BL3
b) Discuss the concept of Unicasting, Anycasting, Multicasting, and Broadcasting.	(5)	CO1	BL3
c) Discuss the concept of network topology and list down the different types of topologies with proper diagram.	(5)	CO1	BL3
9. Answer all the questions:	(15)		
a) Compare between TCP and UDP.	(5)	CO1	BL3
b) Explain TCP header structure in details.	(5)	CO1	BL2
c) Explain the functionalities of Bridges in computer network.	(5)	CO1	BL3
10. Write short notes on	(15)		
a) Pure and slotted ALOHA	(5)	CO1	BL3
b) HTTP	(5)	CO1	BL3
c) SMTP	(5)	CO1	BL3
11. Write short notes on	(15)		
a) DNS	(5)	CO1	BL3
b) WWW	(5)	CO1	BL3
c) Ring and Star topology	(5)	CO1	BL3

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