



Paper id: 250807

Roll No:

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BTECH
(SEM VI) THEORY EXAMINATION 2024-25
COMPUTER NETWORKS

TIME: 3 HRS

M.MARKS: 100

Note: Attempt all Sections. In case of any missing data; choose suitably.

SECTION A

1. Attempt all questions in brief.

2 x 10 = 20

Q No.	Question	CO	Level
a.	What are the goals and applications of OSI reference model?	1	K2
b.	Explain the differences between broadcast and point to point Networks.		
c.	What do you understand by network Topology? Explain the network topologies known to you.	1	K2
d.	Explain the functions of Application layer.	5	K2
e.	Differentiate between Circuit Switching and Packet Switching.	1	K2
f.	What are the differences between multimode and single mode fiber?	1	K2
g.	What is piggybacking? What are its advantages?	3	K2
h.	Differentiate between TCP and UDP.	4	K2
i.	What are the flow control techniques used in data link layer?	2	K2
j.	Name any five routing techniques.	3	K2

SECTION B

2. Attempt any three of the following:

10 x 3 = 30

a.	Explain the functions of: (i) Repeater (ii) Hub (iii) Routers	1	K2
b.	Calculate CRC for a 10-bit sequence 10100011110. The generator polynomial is $x^3 + x + 1$.		
c.	Explain CSMA/CD protocol in detail. Also explain 1-persistent and p-persistent technique.		
d.	Differentiate between (i) Virtual circuit approach and datagram subnet. (ii) Pure Aloha and slotted Aloha.		
e.	(i) A class B network on the Internet has a subnet mask of 255.255.240.0. What is the maximum number of subnets and hosts per subnet. (ii) Convert the IP address whose hexadecimal representation is C22F15B2 to dotted decimal notation.		

SECTION C

3. Attempt any one part of the following:

10 x 1 = 10

a.	Measurements of a slotted ALOHA channel with an infinite number of Users show that 15 percent of slots are idle.	1	K2
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	(i)What is the channel load G? (ii)What is the throughput? (iii)Is the channel under loaded or overloaded?		
b.	Explain different error detection techniques at data link layer with examples.		

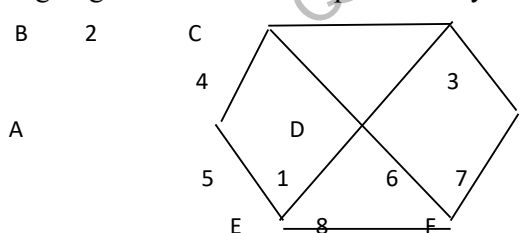
4. Attempt any one part of the following: 10 x 1 = 10

a.	What is IEEE Project 802? Discuss the frame format of IEEE 802.3.	1	K2
b.	What are different sliding window protocols? Write an implementation of 1-bit sliding window protocol.		

5. Attempt any one part of the following: 10 x 1 = 10

a.	Discuss the advantages of IPv6 over IPv4 addressing scheme.	1	K2
b.	Explain congestion and its graph and QOS parameters. Also explain any one congestion control technique with neat diagram		

6. Attempt any one part of the following: 10 x 1 = 10

a.	<p>Consider the subnet below. Distance vector routing is used, and the following vectors have just come into router C: from B(5,0,8,12,6,2); from D(16,12,6,0,9,10); and from E(7,6,3,9,0,4). The measured delays to B, D, and E are 6, 3 and 5 respectively. What is C's new routing table? Give both outgoing lines to use and expected delay.</p> 	1	K2
b.	A 4 Mbps token ring has a token ring holder timer value of 10msec. What is the longest frame that can be sent on this ring?		

7. Attempt any one part of the following: 10 x 1 = 10

a.	Explain RSA encryption algorithm. If n=187, and e=13(public key) then find 'd'(private key).	1	K2
b.	Explain three-way handshaking technique for delayed duplicate packets.		