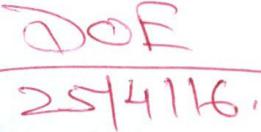
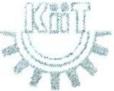
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*6th Sem (Back!*



CN IT-603 (CSE,IT)

# SPRING END SEMESTER EXAMINATION-2016

h Semester B.Tech & B.Tech Dual Degree

## COMPUTER NETWORKS

**IT-603**

(Back-2012 & Previous Admitted Batches)

## Time: 3 Hours Full Marks: 60

*Answer any SIX questions including Question No. I which is compulsory.*

*Thefigures in the margin indicatefull marks.*

*Candidates are required to give their answers in their own words asfar as practicable and all parts o[ a ques tion should be answered at one place onlv.*

1. . a) List two ways in which the OSI reference model and the [2 x 10 TCP/IP are the same & list two ways in which they differ.
   1. Distinguish between Multiple Unicasting and Multicasting.
   2. One way of detecting errors is to transmit data as a block of n rows of k bits per row and adding parity bits to each row and each column. Will this scheme detect all single errors? Double errors?
   3. If flow control and error control are performed at the data link layer, then why is it also necessary to perform flow and error control at the transport layer?
   4. List out the advantages and drawbacks of bus topology.

f) Suppose you wanted to do a transaction from a remote client to a server as fast as possible. Would you use UDP or TCP? Why?

1. Discuss the significance of MAC address, IP address and port numbers.

(I)

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1. Di fferentiate datagram subnet and vi rtual circuit subnet. i ) What is Reverse Address Resolution Protocol(RARP) ?

j) In Stop-and-Wait ARQ, the sequence numbers are based on modulo-2 arithmetic. Why?

1. a) Using 5-bit sequence number, what is the maximum size of [4 the send and receive windows for each of the following protocols?
2. Stop-Wait protocol
3. ) Selective-Repeat ARQ

b) Discuss Link State Routing protocol with example. [4

|  |  |  |  |
| --- | --- | --- | --- |
| 3. | a) | The distance from earth to a distant planet is approximatel y 9 x 1QA 10 m. What is the channel utilization if a stop-and- | [4 |
|  |  | wait protocol is used for frame transmission on a 64 Mbps |  |
|  |  | point-to-point link? Assume that the frame size is 32 KB and the speed of light is 3 x 10/\ 8 *m/s.* |  |
|  | b) | Explai n, how data communication between sender and | [4 |
|  |  | receiver happens using different layers of TCP/IP Stack. |  |

|  |  |  |  |
| --- | --- | --- | --- |
| 4. | a) | Discuss CSMA/CD protocol. Explain why it is not suitable for wireless LAN. | [4 |
|  | b) | Suppose the original datagram i s stamped wi th the ident ification number 422. How many fragments are generated? What are the values in the various fields in the IP datagram(s) generated related to fragmentation? | [4 |

1. a) A bit of stream 10011101 is transm itted using the standard [4 CRC method. The generator polynomial is x/\ 3+ 1. Show

(2)

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* + the actual bit string transmitted. Suppose the third bit from the last is inverted during transmission. Show that this error is detected at the receiver's end.

b) What do you mean by congestion control? Explain the [4 methods involved in TCP slow stai1to avoid congestion

control.

|  |  |  |  |
| --- | --- | --- | --- |
| 6. | a) | For the given bit sequence 101 1110 111, draw the Manchester and differential Manchester encoding . Explain the limitations of Manchester encoding and how it is | [4 |
|  |  | overcome using differential Manchester encoding. |  |
|  | b) | Explain different types of transmission impairments in data communication. | [4 |

7. a) · An administrator has an IP 192.168. 1.0/24 and wants to [4 form subnets for four departments, as shown the table.

Design a possible arrangement of subnets to make each department in a different subnet. For each subnet, give subnet mask and range of IP addresses.

|  |  |
| --- | --- |
| Tech n ical | 100 hosts |
| Sa les | 50 hosts |
| Accou nts | 25 hosts |
| H R | 5 hosts |

b) Describe how Web caching can reduce the delay in receiving [4 a requested object. Will Web caching reduce the delay for

al l objects req uested by a user or for only some of the objects? Why?

(3)

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1. Answer all questions. [2 x 4
   1. DNS i n Internet
   2. Electronic mail
   3. UDP header format
   4. Poison reverse

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