

TIT-602

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Even Semester Examination - 2017

B.TECH. (VI SEMESTER)

COMPUTER NETWORKS

Time: 03:00 Hours

Max Marks : 100

Note : Attempt all questions.

1. Attempt any four parts of the following : (5X4=20)
 - (a) What makes a system or a technique or a model to be followed by the global community? Explain it with its types.
 - (b) List the design issues of OSI model. A 1000 Byte message is sent through a private internet using OSI protocol. If the protocol adds 10 byte header at each layer, what is the efficiency of the system?
 - (c) What is framing? Why framing is required? Explain any one framing technique.
 - (d) Differentiate between circuit switching and packet switching techniques.

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- (e) What are the services provided by ISDN?
- (f) What is the need of data compression? Which layer of OSI protocol is responsible for data compression?

2. Attempt any four parts of the following : (5X4=20)

- (a) Why layering is needed? Would it make sense to use layering all the time?
- (b) Which problem is associated to Distance Vector Routing Algorithm? Explain with the help of suitable example.
- (c) Differentiate between flow control and congestion control.
- (d) Explain piggybacking with the help of example.
- (e) Station A needs to send a message consisting of 9 packets to Station B using a sliding window (window size 3) and go-back-n error control strategy. All packets are ready and immediately available for transmission. If every 5th packet that A transmits get lost (but no ACKs from B ever get lost), then how many packets A will need to transmit in order to send the whole message to B?

3. Attempt any two parts of the following: (10X2=20)
- (a) Draw the header format of transmission control protocol. Explain the significance of FLAGS and Window Size field.
 - (b) Explain the working of SMTP protocol with all its components.
 - (c) An ISP is granted a block of addresses starting with 120.60.4.0/20. The ISP wants to distribute these blocks to 10 organizations with each organization receiving 64 addresses only. Design the sub blocks and give the slash notation for each sub block. Find out how many addresses are still available after these allocations.
4. Attempt any two parts of the following : (10X2=20)
- (a) Draw the header format of IPv6 Protocol. Also explain each and every field of it.
 - (b) Explain how the connection established using ftp while file is transferred from server to client?
 - (c) Why Medium Access Control is used? Differentiate CSMA/CA and CSMA/CD medium access control technique.

5. Attempt any two parts of the following: (10X2=20)
- (a) What is the role of Identification and Fragmentation Offset fields in IPv4 protocol?
 - (b) Differentiate between intra-domain and inter-domain routing. Also explain OSPF routing protocol with its common header format.
 - (c) Consider a subnet with prefix 128.119.40.128/26. Give an example of one IP address (of form xxx.xxx.xxx.xxx) that can be assigned to this network. Suppose an ISP owns the block of addresses of the form 128.119.40.64/26. Suppose it wants to create four subnets from this block, with each block having the same number of IP addresses. What are the prefixes (of form a.b.c.d/x) for the four subnets? Find out the broadcast id of each subnet and number of host in each subnet.
