

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 1078

Roll No. 

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**B. Tech.**

**(SEM. VI) THEORY EXAMINATION 2010-11  
COMPUTER NETWORKS**

ECS601

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 2474

Roll No. 

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**(SEM. VI) THEORY EXAMINATION 2010-11  
COMPUTER NETWORKS**

*Time : 3 Hours*

*Total Marks : 100*

- Note :—**
- (1) Attempt **all** questions.
  - (2) All questions carry equal marks.
  - (3) Assume suitable data wherever necessary.

1. Attempt any **four** parts of the following :— **(5×4=20)**

- (a) Which OSI layer performs the following activities :
- (i) Error detection and correction
  - (ii) Routing
  - (iii) Responsibility for delivery between adjacent nodes.
  - (iv) Reliable process to process data transportation.

- (b) If the frequency spectrum of a signal has a bandwidth of 500 Hz with the highest frequency at 600 Hz according to the Nyquist theorem what should be the sampling rate.
- (c) What is inverse multiplexing ?
- (d) What is the baud rate of a 5 Mbps IEEE 802.3 CSMA/CD LAN ?
- (e) Fill in the blanks :
  - (i) BNC connectors are used by \_\_\_\_\_ cables.
  - (ii) Mail Services are available to network users through the \_\_\_\_\_ layer.
- (f) Why ADSL is not suitable for large business applications ?

2. Attempt any two of the following :— (10×2=20)

- (a) Discuss the problems encountered when a IEEE 802.5 Token ring LAN as source is connected a IEEE 802.3 CSMA/CD LAN as destination ? Also explain how connecting bridge will handle these problems ?
- (b) A channel has a bit rate of 4 kbps and a propagation delay of 20 msec. For what range of frame sizes does stop and wait protocol gives efficiency at least 50%.
- (c) Frames of 1500 bits are sent over 1 Mbps channel using geostationary satellite whose propagation time from earth is 270 ms. Acknowledgments are always piggybacked onto data frames. Three bit sequence numbers are used. What is the maximum channel utilisation for Go-back-n protocol ?

3. Attempt any **two** of the following :— (10×2=20)

- (a) Explain distance vector routing with the help of an example. Also discuss count-to-infinity problem.
- (b) (i) A class B network on the internet has a subnet mask of 255.255.240.0. What is the maximum number of hosts per subnet ?  
(ii) Discuss the functioning of RARP (Reverse address resolution protocol)
- (c) What is congestion ? Elaborate leaky bucket algorithm used for congestion control.

4. Attempt any **two** of the following :— (10×2=20)

- (a) What do you understand by Quality of service parameters ? List various Quality of service parameters.
- (b) What is silly window syndrome in TCP flow control ? Explain Nagel's algorithm and Clark's solution for the syndrome created by sender and receiver ?
- (c) Are both UDP and IP unreliable to the same degree ? Why or why not ?

5. Attempt any **two** of the following :— (10×2=20)

- (a) Explain how SMTP can handle transfer of videos and images? Also explain the advantages of IMAP 4 over POP 3 mail access protocols.

- (b) What is the difference between an Active web document and dynamic web page ? Also explain the role of CGI (Common Gateway Interface)
- (c) (i) Compare and contrast TCP with RTP. Are both doing the same things ?
- (ii) What are the problems for full implementation of voice over IP ? Do you think we will stop using the telephone network very soon ?