Printed Pages : 4 TCS – 602

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

PAPER ID : 1078 Roll No.

B. Tech.

(SEM. VI) EXAMINATION, 2008-09

COMPUTER NETWORKS

Time : 3 Hours] *[Total Marks : 100*

1 Attempt any FOUR parts of the following: **5×4=20**

(a) What is the number of cable links required for n devices connected in mesh, ring, bus and star topology?

(b) List the various layers of OSI model. Briefly explain the working of each of them.

(c) Explain the different uses of computer network.

(d) What is the total delay (latency) for a frame size of 10 million bits that is being set up on a link with 15 routers each having a queuing time of 2 μs. and a processing time of 1 μs? The length of link is 3000 km. The speed of light inside the link is $2x10^8$ m/s. The link has bandwidth of 6 Mbps.

(e) Two network each provide reliable connection oriented service. One of them offers reliable byte stream and other reliable message stream. Are these indentical? Justify your answer.

(f) How long does it take to transmit an 8 inch by 10 inch image by facsimile over an ISDN B channel? The facimile digitizes the image into 300 pixel per inich and assign 4 bits per pixel.

2 Attempt any **four** parts of the following: **5×4=20**

(a) What is hamming code? Explain its working by suitable example.

(b) A channel has a bit rate of 4 Kbps and propogation delay of 20 msce. What will be the size of frame range so that stop and wait give an efficiency of at least 50 percent ?

(c) How FDDI ring can be used as a back bone to connect LANs and computers? Also discuss the FDDI cabling in brief.

(d) Compare the delay of pure ALOHA to slotted ALOHA at low load.

(e) What are the problems faced by pipelining over an unreliable communication channel? How these problems are overcomed?

(f) Explain the following protocals :

(i) Adaptive tree walk.

(ii) Binary exponential Back off algorithem.

3 Attempt any **two** parts of the following: **10×2=20**

(a) (i) Differentiate between adaptive and non-adaptive routing algorithms.

(ii) Whar are the limitations of leaky bucket algorithm? How these are overcomed?

(b) (i) What do you understand by internetworking? Discuss the parameters on which networks differ.

(ii) If fragmentation needed in concatenated virtual circuit internets, or only in datagram system? Explain.

(c) What are the defeciencies of IPv4? How IPv6 was modified to overcome these defeciencies? What are the advantages of using IPv6?

4 Attempt any **two** parts of the following: **10×2=20**

(a) Discuss the transport service primitives. What do you understand by the term : "Three way handshake"? Explain the problem which is solved by this three way handshake.

(b) Explain the TCP segment header. Also discuss the TCP connection management.

(c) (i) Explain the protocal of Transport layer designed for multimedia application.

(ii) What is the procedure for compressing data using run-length encoding ?

5 Attempt any **two** parts of the following: **10×2=20**

(a) Explain simple Network Management Protocal. List its various components and briefly discuss each of them.

(b) (i) When web pages are sent out, they are prefixed by MIME headers. Why?

(ii) Explain the working of digital signature.

(c) Write short notes on any **two**:

(i) DNS

(ii) Vertical Terminal

(iii) USENET.
