

Total number of printed pages – 7

B. Tech
BCSE 3306

Seventh Semester Examination – 2008

COMPUTER NETWORKS

Full Marks – 70

Time : 3 Hours

*Answer Question No. 1 which is compulsory
and any **five** from the rest.*

*The figures in the right-hand margin
indicate marks.*

1. Answer the following questions : 2×10
- (a) Find the number of bits that can be transmitted per second for a channel of 3000 Hz bandwidth with a signal to noise ratio of 30 dB.

P.T.

- (b) How do the virtual circuit and datagram differ on the issue of routing and state information ?
- (c) How congestion control differs from flow control ?
- (d) What does QOS refer to and what is its goal ?
- (e) What is the difference between cryptography and cryptanalysis ?
- (f) How is a repeater different from an amplifier ?
- (g) Do you think that layering is needed for protocol hierarchies ? If so, Why ?

- (h) What is the basic difference between a bridge and a router ?
- (i) What are the advantages one can obtain when a workstation is connected to a computer network ?
- (j) State how connection less protocol differs from connection oriented protocol ?
2. (a) What is Frequency Division Multiplexing (FDM) ? Write few applications of using FDM. Describe the synchronous Time-Division Multiplexing (TDM) technique. 5
- (b) Specify different media for transmission used in computer network. Explain in brief

about the twisted pair and co-axial cable.

Which one is better and why? 5

3. (a) Describe the stop-and-wait ARQ. What is the difference between a Go-back-N ARQ and a Selective – repeat ARQ. 5

(b) Specify different error detection and correction mechanisms. Explain-odd parity error correction scheme with an example. 5

4. (a) Mention difference between Traditional Ethernet and Fast Ethernet. Explain various components of Traditional Ethernet with a schematic diagram. 5

(b) Explain the Shortest path Routing with a suitable example. 5

5. (a) Draw the schematic diagram of the IPV4(Internet Protocol) Header. Explain in brief the function of each component. 5

(b) What is congestion? Explain the principle and prevention policies of congestion control. 5

6. (a) Give an architectural overview of WWW with brief explanations on web pages, browser, URL. 5

(b) What is Hamming distance? What kind of error is undetectable by the checksum? 5

7. (a) Write down characteristic features of a Metropolitan Area Network (MAN). Compare LAN with WAN with respect to their typical costs and typical speeds. 5

(b) Discuss the layer functionalities of the OSI reference model. 5

8. (a) Why message security is important in communication ? Explain in brief the Symmetric key encipherment in cryptography. 5

(b) Write short notes on any two: 5

- (i) DNS – The Domain Name System
- (ii) Simple Mail Transfer Protocol (SMTP)
- (iii) Network layer protocols.