2012

M.Sc.

3rd SEMESTER EXAMINATION

COMPUTER SCIENCE

PAPER—COS-301

Full Marks : 50

Time : 2 Hours

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

Module–I

(*Computer Network*)

[Marks–25]

Answer any *two* questions. 2×10

1. (a) State and explain Nyquist's bit rate theorem for noise less channel. 2

(b) An certain channel can pass signals in the range of 200 Hz to 2700 Hz. The signal to noise ratio of the channel is 1023. Determine the capacity of the channel. 2

(c) What do you mean by signal level and data level of a digital signal? Explain with proper diagram. 3

(d) A signal has four data levels with a pulse duration of 1 nano second calculate the bit rate. 3

2. (a) Draw and explain the constellation diagram of an 8-QAM. 3

(b) Explain with proper diagram, the band with of an FM signal, in terms of the modulating signal. 3

(c) How does a light signal traverse throug a multimode graded—index fiber optic cable? 3

(d) What is the difference between sky-propagation and line-of-sight propagation of a signal? 1

3. The sender has sent a data as 11001010101011011110. What form of the data will sent over the channel if

(i) CRC method is used with divisor polynomial $x^4 + x^2 + 1$.

(ii) Checksum method is used. 5+5

4. (i) Explain circuit switching in detail. 3

(ii) What is base band or broad band? 2

(iii) What is FTP and HTTP? 2

(iv) Explain the different stages of PPP communication in detail. 3

[Internal Assessment — 5 Marks]

Module–II

(*Internet Technology*)

[Marks-25]

Answer any *two* questions. 2×10

5. (a) What do you man by subnetting? Give examples. 3

(b) In a class & subnet, the IP address and the mask value of a host are as follows :

IP Address : 125. 134. 112. 66

Mask : 255. 255. 224. 0

Determine the network address. 2

(c) Explain 'Hierarchical Routing' with suitable example. 5

6. (a) "MIME can not replace SMTP; it is only an extension to SMTP".

—Verity if the statement is correct or not. 5

(b) What is POP 3? How does it differ from IMAP 4? 3+2

7. (a) Why UDP is called iterative?

(b) Explain why TCP is concurrent?

(c) What is persistent TCP connection? When it is useful?

(d) Why IP is called connection less? 2+3+(2+2)+1

8. Write short notes *any two* of the following : 2×5

(i) FTP.

(ii) TELNET.

(iii) TCP/IP.

(iv) Congestion control in TCP.

(v) IP datagram.

[Internal Assessment — 5 Marks]