M.Sc. 3rd Semester Examination, 2013

COMPUTER NETWORKS AND
INTERNET TECHNOLOGY

PAPER—MSC - 301(Module I & II)

Full Marks : 50

Time : 2 hours

The figures in the right-hand margin indicate marks

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

Illustrate the answers wherever necessary

MODULE – I

(Computer Networks)

[ Marks : 25 ]

Answer any two questions : 10 x 2

1. (a) Assume a data stream is made of the following bit sequence : 10110011. Encode this stream using RZ line coding scheme. 4

(Turn Over.)
(b) How is baud rate related to transmission bandwidth in FSK?

(c) If the number of points in a constellation is 8, how many bits can we send per baud?

(d) "Phase modulation (PM) is superior than Amplitude modulation (AM)."—Justify if the statement is correct or not.

2. (a) How does FDM combine multiple signals into one?

(b) What do you mean by bit-padding?

(c) What kind of error is undetectable by checksum checker? What are the conditions for the polynomial used by the CRC generator?

3. (a) Why the size of the sender and receiver window must be at most $2^{m-1}$, in selective repeat ARQ technique?

(b) Bit-stuff the following data:

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0011111100101110111111110
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(c) What is the purpose of jam signal in CSMA/CD? How does CSMA/CD differ from CSMA/CA?  

\[2 + 2\]

(d) What is 'token ring'?  

\[2\]

4. (a) Write down the differences between datagram approach and virtual circuit approach in packet switching.  

\[3\]

(b) Briefly describe HDLC's station types, configurations and mode of communication with proper diagram.  

\[2 + 2 + 2\]

(c) What is the function of Bridse?  

\[1\]

[Internal Assessment : 05]

MODULE – II

(Internet Technology)

[ Marks : 25 ]

Answer any two questions:  

\[10 \times 2\]

1. (a) What is the purpose of NAT? How does it work?  

\[2 + 3\]
(b) What do you mean by adaptive routing? Briefly discuss 'Distance vector routing' technique in this concern.  

2.  (a) Describe how the actual mail transfer is done by mail transfer agents.  

(b) Describe the functions of the two FTP connections.  

(c) What is URL?  

3.  (a) What is connection-oriented service?  

(b) What is the address that is added at the network layer?  

(c) What is DNS?  

(d) Briefly describe TCP header.  

4.  Write short notes (any two):  

(i) Leaky bucket algorithm
(ii) TCP frame format

(iii) Supernetting

(iv) WWW.

[Internal Assessment: 05]