Total No. of Questions :5] *[Total No. of Printed Pages : 2*

Roll No .....

MCA - 305

MCA III Semester

Examination, June 2016

Computer Networks

Time : Three Hours

Maximum Marks : 70

Note: i) Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.
ii) All parts of each questions are to be attempted at one place.
iii) All questions carry equal marks, out of which part A and B (Max.50 words) carry 2 marks, part C (Max.100 words) carry 3 marks, part D (Max.400 words) carry 7 marks.
iv) Except numericals, Derivation, Design and Drawing etc.

Unit - I

1. a) A line has a signal-to-noise ratio of 1000 and a bandwidth of 4000 KHz. What is the maximum data rate supported by this line?
   b) Differentiate between FDM and TDM techniques.
   c) Explain with the help of an example why the vulnerable time in ALOHA depends on T_{fr} but in CSMA depends on T_p?
   d) Discuss the basic principle behind the working of CSMA/CD? Also explain the reasons why this protocol cannot be applied to wireless network? Explain the working principle of CSMA/CD.

   OR

   Explain how communication is established in OSI model? Discuss all the layers in details.

Unit - II

2. a) How does a single-bit error differ from a burst error? Explain with an example.
   b) Discuss the concept of redundancy in error detection and correction.
   c) Given a data word M = 1100111000001110, Determine the CRC using the divisor 1100.

   d) Explain the reason for moving from the Stop-and-Wait ARQ protocol to the Go-Back-N protocol. Describe in detail working of Go-Back-N protocol.

   OR

   A message M = 111100110011 is transmitted using even parity Hamming code. What will be the code word send from the sender side? Also perform error checking at receiver side.

Unit - III

3. a) How does the switch differs from a hub?
   b) What are the functions of routers?
   c) Differentiate between token ring and token bus.
   d) Explain the Frame format of 802.3 standards. What is the maximum and minimum size of a frame?

   OR

   Discuss in details about the FDDI and DQDB protocols in detail.

Unit - IV

4. a) What are the functions of Transport layer?
   b) What do you mean by broadcasting? Explain with an example.
   c) Differentiate between connection less and connection oriented services?
   d) How are congestion control and quality of service related? Explain the general principles of congestion control technique.

   OR

   Explain connection establishment and connection release using 3-way handshaking at transport layer? How does TCP achieve reliability in data transmission?

Unit - V

5. a) Discuss the network security issues.
   b) Explain virtual terminal protocol.
   c) Describe the working of DNS protocol in detail.
   d) Explain the working of IPSec protocol. Also discuss the two modes of operation of this protocol.

   OR

   Write short notes on : (any two)
   i) WWW ii) Multimedia
   iii) SNMP

******