Level: Bachelor Semester: Fall Year   : 2016
Programme: BE Full Marks: 100
Course: Computer Networks Pass Marks: 45
  Time   : 3hrs.

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

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) Explain the merits and demerits of computer network. List the merits of client-server model over peer-to-peer model. 7

   b) Define interfaces and services. Explain in brief OSI reference model. 8

2. a) Why flow control is required in modern communication system? Explain with example. Write about Hamming code. 8

   b) Explain ISDN architecture. Differentiate circuit and packet switching. 7

3. a) Write the functions of data link layer. Design an algorithm for CSMA/CD. 7

   b) An organization consists of 3 different departments with 20, 24 and 30 computers. Explain how you will design three subnets for the departments by subnetting 192.168.1.0/24 network. Provide network address, broadcast address, subnet mask, wildcard mask and usable IP pool for each subnet. 8

4. a) What are routing algorithms? Discuss their significance and suitability. Differentiate between classful and classless routing. 8

   b) What are the services of transport layer? Write about TCP and UDP sockets. 7

5. a) Why congestion control is important in communication service networks? Differentiate between Open-loop and Closed-loop congestion control. 7

   b) "HTTPS is preferred over HTTP for Secured Transaction". Justify. Write about different protocols used while sending and retrieving mails. 8

6. a) What is data encryption and decryption? Explain the symmetric key cryptography for ensuring data security. 8

   b) What is VPN? Explain the importance of Diffic-Hellman key exchange protocol. 7

7. Write short notes on: (**Any two**) 2×5

   a) RSA

   b) CRC

   c) Proxy server