No. of Printed Pages : 3

MCS-042

11499

MCA (Revised)

Term-End Examination

June, 2014

MCS-042 : DATA COMMUNICATION AND COMPUTER NETWORKS

Time : 3 hours *Maximum Marks : 100*

Note : *Question number 1 is **compulsory**. Attempt **any three** questions from the rest.*

1. (a) Sketch the Manchester, Differential Manchester, NRZ-L and NRZ-I for the following bit stream : 6

01001110001

(b) Explain token bucket algorithm. Discuss its advantages and limitations with leaky bucket algorithm. 8

(c) List out the functions provided by presentation, session and transport layers of OSI model. 6

(d) Explain the fundamental operation of stop and wait protocol in Data Link Layer. 4

(e) Compare point to point channels with broadcast channels along with suitable examples. 6

(f) Explain the Diffie - Hellman method for key exchange using an example. 7

(g) Explain Simplex, Half - duplex and Full duplex mode of communication. 3

2. (a) Draw the format of IP Header and explain the significance of each field. **10**

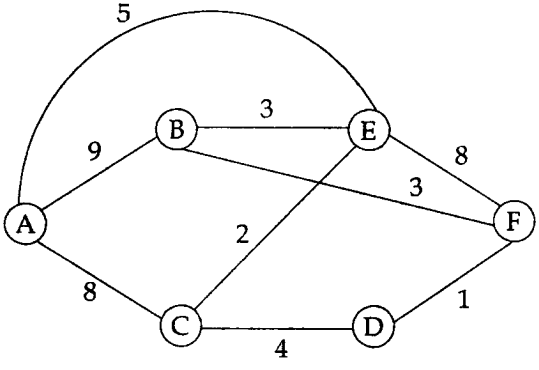
(b) Explain the following using an example for each : **10**

(i) Sliding window protocol using Selective Repeat.

(ii) Sliding window protocol using Go Back N.

3. (a) Discuss the functions and services of sub layers of ATM adaptation layers (AAL). **10**

(b) Consider the following network with the indicated link cost. Use Dijkstra's shortest path algorithm to compute the shortest paths from A to C and F. **10**



4. (a) How information of complete path from source to destination instead of delay (number of hops), helps in solving count - to - infinity problem of distance vector routing ? Explain with an example. **10**

(b) Find CRC for Data polynomial x^4+x^2+x+1 with generator polynomial x^3+1. 5

(c) Explain the working of CSMA/CD. 5

5. Write short notes on the following : 20

(a) RSA algorithm

(b) Hamming Code

(c) Optical Fiber

(d) Pure ALOHA