

Total No. of Questions : 6]

SEAT No. :

P2806

[Total No. of Pages : 2

M.E. (Computer Engineering)
ADVANCED COMPUTER NETWORKS
(2013 Pattern) (510109) (Semester - II)

Time : 3 Hours]

[Max. Marks : 50

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 2) *Figures to the right side indicate full marks.*
- 3) *Use of Calculator is allowed.*
- 4) *Assume Suitable data if necessary.*

Q1) a) Enlist and explain some of the major issues a network designer must consider. **[9]**

OR

b) Describe network functions in brief and explain the issue of “where to implement the capability” with suitable example. **[9]**

Q2) a) 24 terminals share a 9600 bps line. Each terminal sends an average of 10 msg/min over the line. The message lengths are exponentially distributed with an average length of 2000 bits. **[8]**

- i) What is the average time that a message spends in the system?
- ii) What is the total time in the system if we get a second 9600 bps channel and put 12 terminals on each channel?
- iii) Suppose we get a second channel and use the two channels as an M/M/2 queue. What is the total time now?
- iv) Suppose we get a second channel and multiplex the two channels together into a single 19,200 bps channel and offer it the full load. What is the total time now?

OR

b) Explain what is memory less property of exponential distribution, with suitable example based on networks? **[8]**

P.T.O.

Q3) a) Compare the horizontal and vertical approaches to network representation based on the amount of effort required to add and delete nodes, links, and properties. [8]

OR

b) Explain, with the help of suitable example, Esau-William's Algorithm. [8]

Q4) a) What is quality of service in networks? Explain different QOS mechanisms. [9]

OR

b) Compare and contrast the following architectural models for service access:

client-server model, application server model, middleware service model, service oriented computing model and peer-to-peer model. [9]

Q5) a) Explain fragmentation of IP packet. What if the size of an IP datagram exceeds the MTU? What if the route contains networks with different MTUs? [8]

OR

b) Enlist and explain features of IPv6. Comment on Interoperability between IPv6 and IPv4. [8]

Q6) Write Short notes on (any Three): [8]

- a) Content distribution networks.
- b) Components of Cyber Physical Systems.
- c) Computer network simulation.
- d) Next generation networks.

