

[5155] - 272

M.E. (Computer Engineering)

ADVANCED COMPUTER NETWORKS

(2013 Pattern) (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.*
- 3) *Figures to the right side indicate full marks.*
- 4) *Use of Calculator is allowed.*
- 5) *Assume suitable data, if necessary.*

Q1) a) What are the different capabilities which are collectively referred to as “intelligence” within the network? Discuss these capabilities with respect to network design. **[9]**

OR

b) Explain different components of Network design tool and write the process of network design. **[9]**

Q2) a) Compare M/M/1 Queue, M/M/2 Queue and M/M/m Queue with the help of state transition diagram and applications. **[8]**

OR

b) On a network gateway, measurements show that the packets arrive at a mean rate of 125 packets per second (pps) and the gateway takes about 2 milliseconds to forward them. Assuming an M/M/1 model, what is the probability of buffer overflow if the gateway had only 13 buffers? How many buffers are needed to keep packet loss below one packet per million? **[8]**

Q3) a) Explain 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]**

P.T.O.

Q4) a) What is quality of service in network design? Explain different QOS mechanisms. **[8]**

OR

b) Explain various traffic engineering methods. **[8]**

Q5) a) Differentiate between IPV4 and IPV6 header formats. Explain aggregation feature in IPV6. **[8]**

OR

b) Explain ubiquitous computing with design issues and challenges. **[8]**

Q6) a) Explain the use of computer network simulation with suitable example. **[9]**

OR

b) What is cyber physical system? Enlist and explain its various components and compare it with existing technologies like robotics, embedded systems, etc. **[9]**

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