Total No. of Questions : 12]

SEAT No. :

P3431

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[4959]-206

B.E.(Computer Engineering)

b:DESIGN AND ANALYSIS OF COMPUTER NETWORKS

(2008 Course) (Semester-I) (410444)(Elective-I)

Time :3Hours] *[Max. Marks : 100*

Instructions to the candidates:

1) ***Answer any three questions from each section.***
2) ***Answer to the two sections should be written in separate books.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Figures to the right indicates full marks.***

SECTION-I

Q1) a) Why distribution is required in network design? Explain exponential and geometric distribution? **[9]**

b) Message arrives independently to a system at the rate of 10 pm. Their length is exponentially distributed with an average of 3600 characters. They are transmitted on a 9600 bps channel. A character is 8 bit long.**[9]**

i) what is the utilization of server?

ii) What is the probability that there are two messages are in the system?

iii) What is the average message in the system?

OR

Q2) a) Consider a disk drive that can complete an average request in 10 ms. The time to complete a request is exponentially distributed. Over a period of 30 minute, 117000 requests were made to the disk. How long did it take to complete the average request? What is the average number of queued request? **[9]**

b) Describe exponential random variable and memory less property of random variable? **[9]**

Q3) a) Explain the steps for performance analysis and tunning. How performance of a system is tunned? **[8]**

P.T.O.

b) Explain hierarchical and collapsible network architecture? **[8]**

OR

Q4) a) What is switch fabrics? Why a third generation switch fabrics does provides more bandwidth than second generation switch? **[8]**

b) Explain various optimization techniques like multiplexing parallelism, virtualization, soft state etc. used in system design? **[8]**

Q5) a) A computer on 6 Mbps network is regulated by token bucket. The bucket is filled at the rate of 1 Mbps. It is initially filled to capacity with 8 megabits. How long can the computer transmit at the fill 6Mbps? **[8]**

b) Explain the rate controlled scheduling for generated service conneciton? **[8]**

OR

Q6) a) Explain how TCP support flow control? Differentiate between open loop and close loop flow control technique? **[8]**

b) Explain WFQ? What is the advantage of worst case fair weighted fair queuing(WF^2Q) over WFQ? **[8]**

SECTION-II

Q7) a) Explain different traffic model in details? **[8]**

b) What is QOS? Explain different queue manaement algorithms? **[8]**

OR

Q8) a) Explain, what are the different time scale and mechanism used at these time scale for traffic management? **[8]**

b) What is signaling mechanism? Explain IETF signaling. **[8]**

Q9) a) Explain what is routing using masks with suitable examples? **[8]**

b) What is subnetting and super-netting? Explain with suitable example? **[8]**

OR

Q10) a) Explain how fragmentation is handled in IPV4 and IPV6?. **[8]**

b) Explain Router architecture with suitable diagram. **[8]**

Q11) a) Discuss security issues at network layer with suitable example and possible solutions? **[9]**

b) What are the roles and responsibilities of network administrator? **[9]**

OR

Q12) Write short note on **[18]**

a) Bandwidth management tools.

b) CIDR

c) Next generation network