Total No. of Questions : 12]

SEAT No. :

P1881

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[4859]-1074

B.E. (Computer Engineering)

COMPUTER NETWORK DESIGN AND MODELING

(410444 B) (Elective - I) (2012 Course) (Semester - I)

Time : 3 Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Use of electronic pocket calculator is allowed.***
4) ***Assume suitable data, if necessary.***

Q1) State and explain various performance characteristic in details. **[6]**

OR

Q2) Give an example of a mission critical application for the government or commercial environment. Why this application is considered as mission critical? **[6]**

Q3) With the help of suitable diagram explain the requirement analysis process. What is the need of developing service metric? **[7]**

OR

Q4) Write a short notes on: **[7]**

a) Developing RMA requirements.

b) Requirement mapping.

Q5) Explain the concept of flow models with the help of peer-to-peer and client-server models. **[7]**

OR

Q6) Develop a flow model for real time flows. How to characterize the flows for this model? Explain in detail. **[7]**

P.T.O.

Q7) a) Explain the various routing mechanisms. **[10]**

b) What is subnetting? Explain variable length subnetting. **[6]**

OR

Q8) a) State and explain the internal and external relationships in architectural considerations. **[10]**

b) Explain the concept of supernetting in details. **[6]**

Q9) a) Discuss the performance mechanisms; also compare DiffServ and IntServ. **[10]**

b) Write a short note on developing goals for performance. **[6]**

OR

*Q10)*a) What are the major components of the evaluation process for vendors, service providers, and equipment? Explain in detail. **[10]**

b) What is equipment evaluation? Which of the following evaluation criteria most likely apply to equipment evaluations, which ones apply to service-provider evaluations, and which apply to both? **[6]**

- Available service-level agreements (SLAs)
- Mean time between failure (MTBF)
- Mean time between service outage (MTBSO)

*Q11)*a) Explain the terminology and components of discrete-event simulation also explain the principle of discrete event simulation. What are the types of simulation runs? **[12]**

b) What is object aggregation? Explain various events in NS3 or equivalent. **[6]**

OR

*Q12)*a) Write a short notes on: **[12]**

i) Importance of Modeling and Simulations in Computer networks.

ii) OMNeT++.

iii) Modeling network elements.

b) What is smart pointer? Explain in details. **[6]**