

Total No. of Questions : 12]

SEAT No. :

P2330

[Total No. of Pages : 2

[5254]-665

**B.E. (Computer Engineering)**

**COMPUTER NETWORK DESIGN AND MODELING**

**(2012 Pattern) (Elective - I) (Semester - I)**

*Time :2:30 Hours]*

*[Max. Marks : 70*

*Instructions to the candidates:*

- 1) *All questions are compulsory.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figure to the right indicates full marks.*
- 4) *Assume suitable data, if necessary.*

**Q1)** Theoretically prove network analysis, architecture, and design are similar to other engineering processes with respect to following areas - problems to be addressed, Analyzing data and optimization. **[6]**

OR

**Q2)** What is the need of developing service metric? With the help of suitable diagram explain the requirement analysis process. **[6]**

**Q3)** What are the different Application Types and Application Groups needs to consider while designing a network. **[8]**

OR

**Q4)** Write a short note on:

- a) Service metrics for RMA. **[4]**
- b) Variables used as service metrics. **[4]**

**Q5)** Write Flowspec Algorithm and explain with example. **[8]**

OR

**Q6)** Explain in detail with example and diagram - Topological Models, Flow-Based Models, Functional Models and Distributed computing model. **[8]**

**P.T.O.**

- Q7)** a) What are the different Addressing Strategies during the life cycle of the network explain with diagram. [8]  
b) What is importance of Network Layout for analyzing network performance?. [4]

OR

- Q8)** a) Explain FCAPS model in details [4]  
b) Explain with diagram: [8]  
i) In-band and out-of-band management  
ii) Centralized, Distributed, and Hierarchical Management
- Q9)** a) What are the different addressing mechanisms strategies explain in details? [8]  
b) Explain Prioritization, Traffic Management, Scheduling, Queuing and Quality of Service with respect to performance mechanism. [10]

OR

- Q10)** a) List four types of problems that the performance architecture addresses. Give examples of each type of problem? [8]  
b) What are the roles of design traceability and design metrics for analyzing network performance? [10]
- Q11)** a) Enlist the tools used for network simulation and elaborate any one of them. [4]  
b) Explain the concept of the NED Language and IDE Support for NED. [6]  
c) Explain in details the The OMNeT++ Approach for Modeling. [8]

OR

- Q12)** a) Explain Simulating a Computer Network in ns-3. [6]  
b) Write a short note on: [12]  
i) Smart Pointers in ns-3  
ii) Events in ns-3  
iii) Scalability with distributed simulation.

