

Total No. of Questions : 08]

SEAT No. :  

**P4212**

**[4760]-1195**

[Total No. of Pages :2

**M.E. (Computer Engineering )**  
**ADVANCED NETWORK COMPUTER NETWORK**  
**(2013Credit Pattern) (Semester-II)**

*Time : 3 Hours]*

*[Max. Marks : 50*

*Instructions to the candidates:*

- 1) Answer any three questions from question No. 1,2,3,4, and any three questions from question No.5,6,7,8,.*
- 2) Figures to the right side indicate full marks.*
- 3) Draw neat diagram wherever necessary.*
- 4) Make suitable assumptions wherever necessary.*

- Q1)** a) Write short note on principals of network design. **[5]**  
b) Explain with example an application of probability theory in network design and analysis. **[4]**
- Q2)** a) Enlist and explain some of the measure issues a network designer must consider. **[5]**  
b) Analyse M/M/n queuing system using state transition diagram. **[4]**
- Q3)** a) Message arrives to the system at the rate of 10 per minute. Length of message is exponentially distributed with average of 3600 character on the transmission channel of 9600 bps. Calculate. **[5]**  
i) Average service time.  
ii) Service rate.  
iii) Utilization of server.  
iv) Probability of three messages in the system.  
v) Average number of messages in the queue.  
vi) Average waiting time. vii) Average time in the system.
- b) State and explain Little's theorem. **[3]**

**P.T.O.**

- Q4)** a) Explain the centralized network design along with the problems associated with it. [4]  
b) Explain with example ESAU-Williams algorithm to find CMST. [4]
- Q5)** a) What is quality of service in network design? Explain the any three Qos mechanism. [4]  
b) Explain various traffic engineering methods. [4]
- Q6)** a) Explain ubiquitous computing with design issues and challenges. [4]  
b) Differentiate between IPV4 and IPV6 header format. Explain aggregation feature in IPV6. [4]
- Q7)** a) What do you mean by delay in communication subnet? Explain different component to calculate the delay. [5]  
b) Write short note on Internet of Things. [4]
- Q8)** a) Explain the following performance characteristics of network. [5]  
• Throughput,  
• Routing overhead,  
• Capacity,  
• Bandwidth,  
b) Write short note on cyber physical system. [4]

