R09

Code No: D4308, D5405

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.Tech II - Semester Examinations, March/April 2011
RELIABILITY ENGINEERING
(COMMON TO POWER ELECTRONICS, POWER ELECTRONICS & ELECTRIC DRIVES)

Time: 3hours **Max. Marks: 60**

Answer any five questions
All questions carry equal marks
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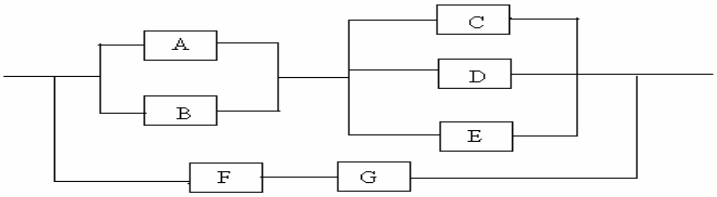
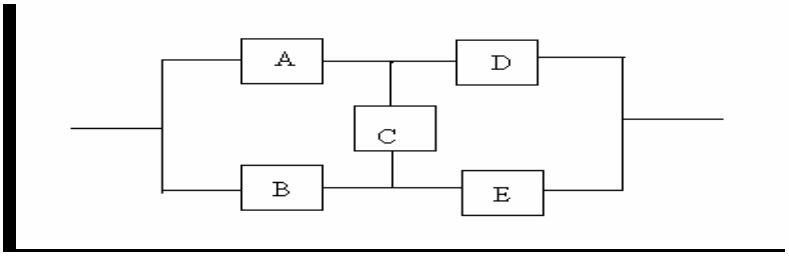
1. a) Explain with examples random variables .
   b) Derive expression for mean and standard derivation of exponential distribution. [12]

2. a) Explain the concepts of Poisson distribution.
   b) Derive expression for reliability function R (f) of a reliability system in terms of failure rate. [12]

3. Derive general expression for reliability of the following system, and obtain its reliability of each component is 0.95 [12]



4. Obtain the reliability of the following system using cut set technique if the reliability of each component is 0.75. Also derive the equation used. [12]



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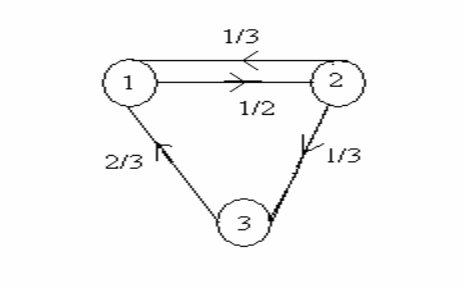
5. a) What do you mean by absorbing states.
   b) Explain the limiting state probabilities evaluation technique. [12]

6. For the three state system shown below obtain
   a) Time dependent probability after three time intervals.
   b) Limiting state probability. [12]



7. Write short notes on the following. [12]
   a) Normal distribution
   b) Stochastic transitional probability
   c) Bathtub curve.

8. Write short notes on the following:
   a) Normal distribution
   b) Stochastic transitional probability matrix
   c) Bathtub curve. [12]

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