

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)

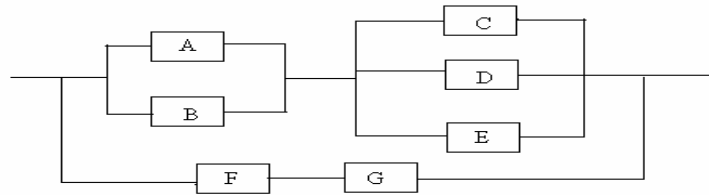
Time: 3hours

Max. Marks: 60

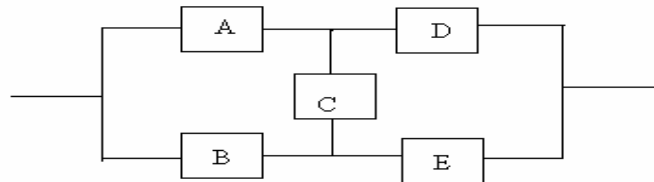
Answer any five questions
All questions carry equal marks

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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 $R(t)$ 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]



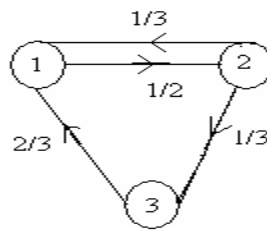
4. Obtain the reliability of the following system using cut set technique if the reliability of each component is 0.75. Also derive the equation used. [12]



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5. a) What do you mean by absorbing states. [12]
 b) Explain the limiting state probabilities evaluation technique.
6. For the three state system shown below obtain [12]
 a) Time dependent probability after three time intervals.
 b) Limiting state probability.



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: [12]
 a) Normal distribution
 b) Stochastic transitional probability matrix
 c) Bathtub curve.
