JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.TECH I SEMESTER EXAMINATIONS, APRIL/MAY-2012
RELIABILITY ENGINEERING
(CONTROL SYSTEMS)

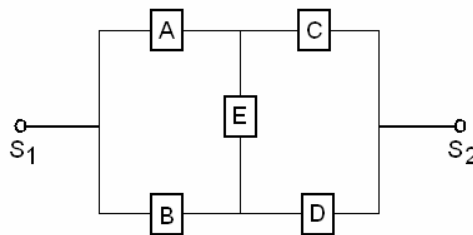Time: 3hours   Max. Marks: 60

Answer any five questions
All questions carry equal marks

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1.a) Explain with examples, probability density function and probability distribution function.
   b) Justify the use of exponential distribution in reliability evaluation of non-repairable system.

2.a) Explain the concept of hazard rate with examples.
   b) Derive the expression for reliability in terms of hazard rate.

3.a) With a neat sketch explain various regions of Bath-Tub-Curve.
   b) Explain the effective of preventive maintenance on reliability.

4.a) Derive the expression for reliability evaluation of series and parallel systems.
   b) Explain conditional probability method for reliability evaluation of non-series-parallel systems.

5.a) What do you mean by minimal tie-set?
   b) For the given network obtain reliability expression using minimal tie-sets.

6.a) Explain Markov process for reliability evaluation of repairable systems.
   b) How absorbing states are useful in reliability evaluation?

7.a) Define MTTF and MTBF.
   b) Obtain state space diagram for a two component system with condition that simultaneous failures does not occur.

8. Write short notes on:
   a) Continuous and discrete random variables.
   b) Limiting state probability.

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