R09

Code No: C0702

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

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

Answer any five questions
All questions carry equal marks
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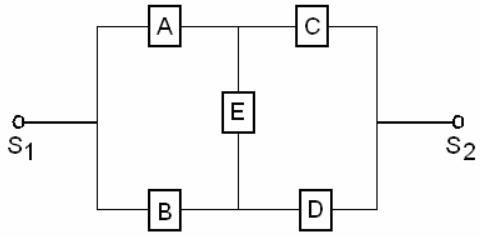
1.a) What is a random variable? Distinguish between continuous and discrete random variable.
b) Explain the condition under which binomial distribution can be approximated to poisson distribution.

2.a) Define reliability and explain the significance of key terms in the definition.
b) What is Hazard rate? Explain with examples.

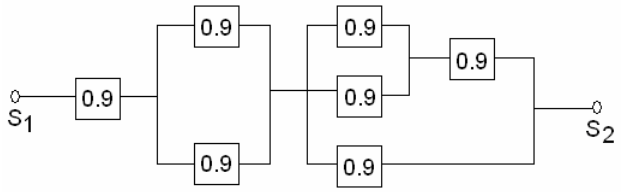
3.a) Explain with a neat sketch, various regions of Bath-tub-Curve.
b) What is the effect of preventive maintenance on reliability?

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

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



6.a) Obtain overall reliability of the network shown.



b) Define MTTF and MTBF.

7.a) What do you mean by absorbing states?
b) Obtain state space diagram for a two component system with the condition that simultaneous failures does not occur.

8. Write short notes on:
a) Limiting state probabilities
b) Deduction of minimal cut sets from minimal path sets.

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