

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

- - -

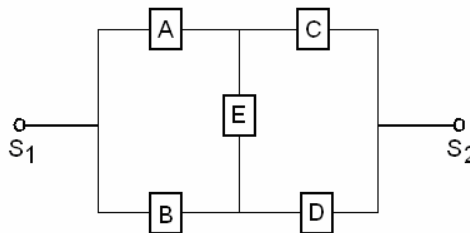
- 1.a) What is a random variable? Distinguish between continuous and discrete random variable.
- b) Explain the condition under which binomial distribution can be approximated to poisson distribution.

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

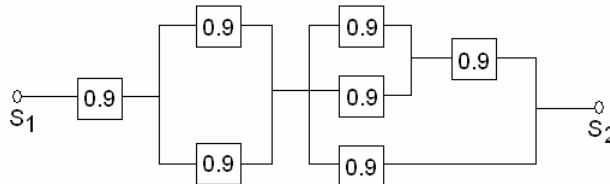
- 3.a) Explain with a neat sketch, various regions of Bath-tub-Curve.
- b) What is the effect of preventive maintenance on reliability?

- 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.