Code: 9A10702 R09

B.Tech IV Year I Semester (R09) Supplementary Examinations, May 2013

RELIABILITY ENGINEERING

(Common to E.Con.E & EIE)

Time: 3 hours Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks

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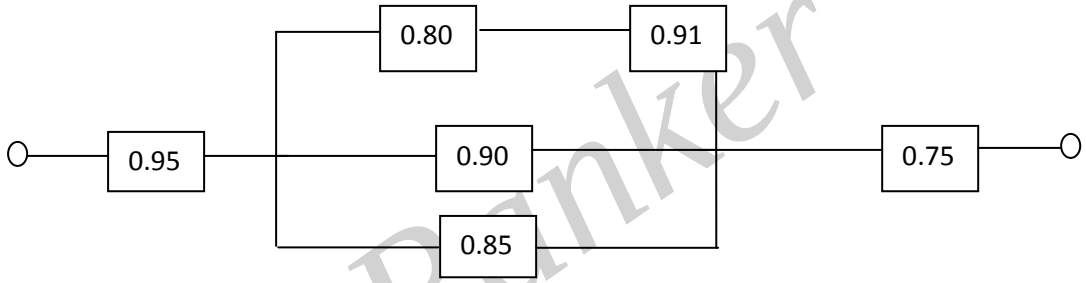
1. (a) Define the terms probability density and probability distribution function.
   (b) Describe the binomial and exponential distributions.

2. Derive expressions for mean and standard deviation of binomial distribution.

3. Derive a general expression for unreliability of the system shown down, and evaluate the unreliability of the system for the component reliability shown in below figure.



Figure

4. (a) Describe the Markov modeling concepts and its chains.
   (b) Explain the concepts of stochastic transitional probability matrix.

5. (a) Give state space diagrams of two component system with adequate repair facility.
   (b) Explain the Markov process for reliability evaluation of repairable system.

6. (a) Explain about TPM.
   (b) Explain cut-set methods of reliability evaluation of non-series parallel system.

7. (a) What area the design considerations for maintainability? Explain.
   (b) What are the estimation parameters for exponential and Weibull distribution? Explain.

8. Write a short-notes on:
   (a) The normal distribution.
   (b) Product reliability and product safety.
   (c) Bath-tub curve.

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