

**R09****Code: 9A02708**

B.Tech IV Year I Semester (R09) Regular &amp; Supplementary Examinations December 2015

**RELIABILITY ENGINEERING & APPLICATIONS TO POWER SYSTEMS**

(Electrical and Electronics Engineering)

Time: 3 hours

Max. Marks: 70

Answer any FIVE questions

All questions carry equal marks

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- 1 (a) Discuss various probability rules for combination of events.  
(b) An experiment in which the probability of success  $\frac{1}{4}$  is performed three times. Develop the probability and distributions for the random events.
- 2 (a) Analyze the reliability of series connected networks.  
(b) Explain the reliability evaluation of complex network.
- 3 (a) Develop the expression for equivalent failure rate of a parallel connected system.  
(b) Evaluate the probability of system surviving if at least three out of the five units must be success for a time period of 1500 hours, if the failure rate of each unit is 0.2 (failures per year).
- 4 Discuss about various methods of evaluation of limiting state probabilities.
- 5 Develop the expressions for cumulative probability, equivalent transitional rate and cumulative frequencies of two component repairable system with identical transitional rates.
- 6 What are losses of energy indices? Discuss the evaluation of these indices
- 7 What are system and load point reliability indices? Discuss. Give their importance.
- 8 List and define customer oriented indices. Explain the evaluation of these indices to radial networks.

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