

R09

Code: 9A02708

B.Tech IV Year I Semester (R09) Supplementary Examinations June 2017
RELIABILITY ENGINEERING & APPLICATIONS TO POWER SYSTEMS
(Electrical & Electronics Engineering)

Time: 3 hours

Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks

- 1 (a) Define conditional probability.
(b) What is the significance of probability density function?
(c) Derive an expression for standard deviation of binomial distribution.
- 2 (a) How is the reliability evaluated for series parallel networks?
(b) Evaluate the reliability of a parallel system consisting of five components, each with a probability of 0.9.
- 3 (a) Derive the relationships between various reliability functions.
(b) What is bath tub curve? Explain its significance.
- 4 What is STPM? How is it used for evaluation of limiting state probabilities? Derive STPM for one component repairable system.
- 5 (a) What is cumulative frequency?
(b) Evaluate the frequency of encountering states for two component repairable models.
- 6 (a) Evaluate the transition rates of merged state model.
(b) Define the terms LOLP, LOLE and LOEE.
- 7 List out annualized load point indices. Explain the calculation using probability of failure and frequency.
- 8 Define and explain all load and energy oriented indices.
