

Code.No: 07A70207

R07

SET-1

IV B.TECH – I SEM EXAMINATIONS, NOVEMBER - 2010
RELIABILITY ENGINEERING AND APPLICATION TO POWER SYSTEMS
(ELECTRICAL AND ELECTRONICS ENGINEERING)

Time: 3hours**Max.Marks:80**

Answer any FIVE questions
All questions carry equal marks

- - -

1. Define probability and explain probability density functions and distribution functions. [16]
2. Explain series systems reliability evaluation with an example. [16]
3. Explain the relation between $f(t)$, $F(t)$, $R(t)$, $h(t)$ functions. [16]
4. Define Markov chains and explain the concept of stochastic transitional probability matrix & evaluation of limiting state probabilities. [16]
5. Explain the state space approach of reliability evaluation, for the system having two-components with dependent failures. [16]
6. How the generation load models are merged & explain the evaluation of transition rates for merged state models. [16]
7. Explain the composite systems reliability evaluation using decomposition method with an example. [16]
8. Write short notes on reliability measures:
a) MTTF b) MTTR c) MTBF [16]

Code.No: 07A70207

R07

SET-2

IV B.TECH – I SEM EXAMINATIONS, NOVEMBER - 2010
RELIABILITY ENGINEERING AND APPLICATION TO POWER SYSTEMS
(ELECTRICAL AND ELECTRONICS ENGINEERING)

Time: 3hours**Max.Marks:80**

Answer any FIVE questions
All questions carry equal marks

- - -

1. Explain the expected value and standard deviation of binomial distribution with an example. [16]
2. Explain the reliability evaluation of parallel systems with an example. [16]
3. Explain the expected value and standard deviation of exponential distribution with an example. [16]
4. Explain the evaluation of one component repairable systems with the use of marker processes with an example. [16]
5. What is meant by combining states? Give an example of how the reliability evaluation is done for such type of problems. [16]
6. Define cumulative probability and explain the cumulative frequency of failure evaluation in generation of system reliability analysis. [16]
7. Explain the Two-weather Markov model for weather effects on transmission line problems. [16]
- 8.a) Explain the basic concepts of distribution system reliability analysis.
b) Explain Frequency & duration concept technique. [16]

Code.No: 07A70207

R07

SET-3

IV B.TECH – I SEM EXAMINATIONS, NOVEMBER - 2010
RELIABILITY ENGINEERING AND APPLICATION TO POWER SYSTEMS
(ELECTRICAL AND ELECTRONICS ENGINEERING)

Time: 3hours**Max.Marks:80**

Answer any FIVE questions
All questions carry equal marks

- - -

1. Define Reliability and explain Binomial distribution in detail. [16]
2. Explain the series-parallel reliability evaluation with examples. [16]
3. Explain the bath tub curve and its different time intervals. [16]
4. Explain how time dependent probability evaluation is done with the help of Laplace transform approach giving an example. [16]
5. Define state probability, explain the reliability evaluation of a system with two independent components using state-space approach. [16]
- 6.a) Explain the reliability model of a generation system.
b) Explain FOR and EFOR in generation system model. [16]
7. Explain the reliability indices in composite system reliability analysis. [16]
8. Explain how the distribution system reliability analysis is performed for radial Networks. [16]

Code.No: 07A70207

R07

SET-4

IV B.TECH – I SEM EXAMINATIONS, NOVEMBER - 2010
RELIABILITY ENGINEERING AND APPLICATION TO POWER SYSTEMS
(ELECTRICAL AND ELECTRONICS ENGINEERING)

Time: 3hours**Max.Marks:80**

Answer any FIVE questions
All questions carry equal marks

- - -

1. Define probability and explain the different rules for combining the probabilities of events. [16]
2. Explain how non series-parallel systems reliability is evaluated using decomposition method. [16]
3. Explain how series-parallel Networks reliability evaluation is done with the use of exponential distribution. [16]
4. How the reliability evaluation is done for two component repairable models with an example. [16]
5. Define mean cycle time & explain one, two component repairable models reliability evaluation using the concept of frequency of encountering states. [16]
- 6.a) Explain LOLP & LOLE in generation system reliability.
b) Explain the concept of load Modelling. [16]
7. Explain the weighted-average-rate-model for the evaluation of weather effects on transmission lines. [16]
8. Explain the reliability indices for radial Networks in distribution systems. [16]
