Roll No. | | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(Electronics & Computer Engg.) (E-III 2011 Onwards)
(Sem.–7,8)

RELIABILITY ENGINEERING

Subject Code : BTEL-912
Paper ID : [A3250]

Time : 3 Hrs. **Max. Marks : 60**

INSTRUCTION TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

1. Write briefly :

a. Represent a reliability graph using probability density function.

b. List out the procedure used in Kolmogorov-Smirnov goodness of fit test.

c. How do you compute the upper and lower bounds on MTBF when reliability testing is terminated based on pre- assigned time?

d. Define human reliability.

e. A system has three identical subsystems in parallel redundancy. What is the system reliability if the subsystem reliability is 0.80?

f. Compare Reliability and Quality.

g. Give any two methods for testing the goodness of fit of data to distribution.

h. What do you mean by redundant system? How it differs from standby system?

i. Define Availability.

j. What do you mean by ALARP?

SECTION-B

2. Explain the various parameters of system effectiveness in reliability engineering.

3. Explain the various types of reliability systems. Also, mention their importance.

4. What are the reliability test standards? Also, mention its importance.

5. What is a standby system? Derive MTBF of a two unit standby redundant system.

6. Discuss about the application of Baye's decomposition method of estimating reliability of complex systems. Illustrate with the example of a complex configuration.

SECTION-C

7. Explain the basic concept of probability theory. What are the rules for combining probabilities of events? Explain it.

8. What is the different component reliability? Explain Hazard rate.

9. Write short notes on :

   a. Markov model for two unit system

   b. Reliability utility cost model