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EME014

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 140654

Roll No.

B. Tech.

(SEM. VI) THEORY EXAMINATION, 2014-15

RELIABILITY ENGINEERING

Time : **3** Hours] [Total Marks : **100**

Note : Attempt all question of the followings.

1 Attempt any two parts of the following : **10×2=20**

(a) What do you mean by "Reliability"? Also discuss the various types of failures in the field of reliability engineering.

(b) Discuss the various factors influencing system effectiveness in reliability engineering.

(c) What do you mean by "PROBABILITY" of system reliability ? Also discuss the laws of probability.

2 Attempt any two parts of the following : **10×2=20**

(a) Discuss the various types of reliability systems :

(i) Series

(ii) Parallel

(iii) Series Parallel

Also mention its importances.

(b) Explain the following methods of reliability evaluations :

(i) CUT-SET Methods

(ii) TIE-SET Methods

(iii) MARKOV Methods.

(c) Write short notes on the following :

(i) Empirical Reliability Calculations

(ii) Data Analysis Procedures

(iii) Data Collection and Recovery of Data.

3 Attempt any two parts of the following : **10×2=20**

(a) Discuss the reliability evaluation using probability distributionmethods. Also mention the limitations of probability distribution methods.

(b) What do you mean by "PROBABILITY" of system reliability? Also discuss the laws of probability.

(c) Explain the Bay's theorem for reliability concepts. Also mention its significances and drawbacks.

4 Attempt any two parts of the following : **10×2=20**

(a) What do you mean by "RELIABILITY TESTING" ? Also mention its advantages and disadvantages.

(b) Explain the types of redundancies. Also discuss the effect of maintenance.

(c) Explain the following :

(i) Component Redundancy.

(ii) System Redundancy.

5 Attempt any two parts of the following : **10×2=20**

(a) What are the methods of reliability improvement ? Explain in detail.

(b) What are the requirements for life testing? Also discuss the reliability test standards.

(c) Discuss the various matrix methods event trees and fault trees methods.