



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

PAPER ID : 121857

Roll No.

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B. Tech.

(SEM. VIII) THEORY EXAMINATION, 2014-15
RELIABILITY ENGINEERING

Time : 3 Hours]

[Total Marks : 100

- Note :**
- (1) Attempt all questions.
 - (2) Each question carries equal marks.

- 1 Answer any two parts of the following : **10×2=20**
 - (a) Write the main objectives of 'Reliability' and discuss its four main elements.
 - (b) Discuss different types of failures and plot the bath tub curve in the field of Reliability Engg.
 - (c) Explain various parameters of system effectiveness in reliability Engg.

- 2 Answer any two parts of the following : **10×2=20**
 - (a) What is the poisson distribution ? What are the mean, standard deviations and variance ?
 - (b) Explain the Bay's theorem for reliability concepts. Also mention its significances and drawbacks.

- (c) Write short note on :
- (a) Random number and Data Collection
 - (b) Data Analysis Procedures
 - (c) Conditional Probability
- 3** Answer any two parts of the following : **10×2=20**
- (a) Differentiate between the following :
- (i) Parallel system and series parallel system
 - (ii) Stand by and complex system.
- (b) Write short notes on :
- (i) Development of logic diagram.
 - (ii) Methods of reliability evaluation.
- (c) Explain briefly Markov's method and frequency and duration method. Which method is mostly used in reliability engineering and why ?
- 4** Answer any two parts of the following : **10×2=20**
- (a) Explain the term component redundancy and also mention the methods of reliability improvement.
- (b) Explain briefly the types of redundancies with suitable examples.
- (c) What are the effects of maintenance ? Also mention its importance ?

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

- (a) Write short notes on :
 - (i) Data reporting system
 - (ii) Data reduction and analysis.
 - (b) Explain with suitable example, life testing and its requirements. Also write down its different methods.
 - (c) What are the reliability test standards ? Also discuss the testing planning.
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