Reg. No. : | | | | | | | | | | |

Question Paper Code: 39520

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2018

Elective

Electronics and Instrumentation Engineering

01UEI921 - RELIABILITY AND SAFETY ENGINEERING

(Regulation 2013)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. Define safety.
2. Why one should carry out system safety analysis?
3. List the types of safety audit.
4. Give a framework for risk assessment.
5. List the types of records and reports.
6. What is X ray? Which of this, short or long wavelength causes more harm.
7. Draw the bath-tub curve and list its regions.
8. Define A priori probability of survival.
9. Why is design for reliability is important?
10. Define availability.

PART - B (5 x 16 = 80 Marks)

11. (a) Explain the evolution of modern safety concepts in safety engineering. (16)

Or

(b) (i) Illustrate the basic elements of incident recall techniques. (8)

(ii) Explain the several ways to perform safety inspections. (8)

12. (a) Discuss the unsafe act and unsafe condition in the shop floor. (16)

Or

(b) Why industrial noise should be controlled? What provisions are given in factories rules for the control of industrial noise? (16)

13. (a) Why disaster management plan is needed? With the help of the Factories Act and other relevant Acts explain in detail the working of the plan. (16)

Or

(b) Describe the concepts of accident investigation and analysis. (16)

14. (a) Derive the reliability function using cumulative distribution function. (16)

Or

(b) Explain bath-tub curve and product failure behavior. (16)

15. (a) Illustrate the principles of reliability centered maintenance with example. (16)

Or

(b) (i) Explain reliability based spare planning management implementation. (8)

(ii) Describe the elements of reliability growth monitoring. (8)

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