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

Question Paper Code: 39520

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 2019

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. What is safety and safety policy.
2. Why one should carry out system safety analysis?
3. Write the names of our Acts enacted in India for the protection of the workers.
4. Give a framework for risk assessment.
5. What are the ways the health is affected by an aromatic chemical industry?
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. Define reliability allocation.
10. Define availability.

PART - B (5 x 16 = 80 Marks)

11. (a) How fire occurs? You are the engineer in charge of an oil storage terminal for receipt and supply of gasoline. What safety provisions will you provide in the terminal and what safety precautions will you observe while operation and maintenance. (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) Discuss the unsafe act and unsafe condition in the shop floor. (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) Explain the direct and indirect costs of accidents. (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) What is FMEA? An aviation warning lamp is supplied by a DC battery source through a set of three switches which are operating in parallel. Draw the circuit and carry out fault tree analysis for warning lamp failure and list the basic events. (16)

Or

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

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