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**Question Paper Code: S31582**

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2017

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. Compare reliability and quality.
8. Define A priori probability of survival.
9. Brief the meaning of reliability centered maintenance.
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) What is ionizing radiation hazard? What are the safe ways of radiation protection and control? (16)
12. (a) How industrial activity pollutes the environment? What safeguards are stipulated through different Acts to protect environment? (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) Explain the direct and indirect costs of accidents. (16)
14. (a) Write short notes on (i) Reliability growth monitoring (ii) Reliability allocation. (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) 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)
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