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**Question Paper Code: 99908**

B.E./B.Tech. DEGREE EXAMINATION, NOV 2023

Elective

Chemical Engineering

19UCH908 - CHEMICAL PROCESS PLANT SAFETY

(Regulations 2019)

Duration: Three hours

Maximum: 100 Marks

Answer All Questions

PART A - (10 x 1 = 10 Marks)

1. The OSHA Form 300 is an injury/illness log. CO1- U  
(a) Injury            (b) Analysis            (c) Finance            (d) Assistance
2. What can understand by the factor of safety equal to one? CO1- U  
(a) It means that the structure will fail under load  
(b) It means that the structure will only support the actual load  
(c) It means that the structure will support more than the actual load  
(d) There is no relation between factor safety and load application
3. Safety and Health Achievement Recognition Program (SHARP) recognizes CO1- U  
(a) Small employers who operate safety and health management system  
(b) Large employers who operate safety and health management system  
(c) All employers who operate safety and health management system  
(d) Workers who operate safety and health management system
4. For which of the following design factor of safety the design will work properly? CO2- U  
(a) 0.1            (b) 1            (c) 2            (d) 0.9
5. The function of the ignition system is to \_\_\_\_\_ the flame propagation process CO1- U  
(a) stop            (b) initiate  
(c) balance            (d) none of the mentioned

6. In which categories explosives are used in highest amount? CO3- U  
 (a) Coal mining (b) Metal mining  
 (c) Non-metallic mining (d) Construction
7. Hazard identification mainly focus on \_\_\_\_\_ CO1- U  
 (a) Chemical source and concentration (b) Chemical exposure  
 (c) Chemical analysis (d) Chemical pathway
8. Why does site history have to be considered for hazard identification? CO2-U  
 (a) To estimate the risk  
 (b) To calculate carcinogenic exposure  
 (c) To know the probable source and causes of contamination on site  
 (d) For determination of remedial actions
9. From the below mentioned options, which of the following is not mentioned under the welfare provision in the factories act? CO1- U  
 (a) Canteen (b) Creches  
 (c) Drinking water (d) First aid
10. As per section 2 in factories act, who will be called as an adult? CO2-App  
 (a) A person who has completed 21 years of age  
 (b) A person who is less than 19 years of age  
 (c) A person who has completed 24 years of age  
 (d) A person who has completed 18 years of age

PART – B (5 x 2= 10Marks)

11. What are the 6 factors that can affect the toxicity of a substance? CO2-App
12. What are potential failures? CO1- U
13. Analyze the importance of Effective Ignition Source? CO3-Ana
14. Difference between qualitative and quantitative risk analysis. CO1-U
15. List out the main objectives of Indian factories act 1948? CO2-App

PART – C (5 x 16= 80Marks)

16. (a) What is safety program? Why it is essential? CO1- U (16)  
 Or  
 (b) What are the four baselines of safety? Explain each. CO1- U (16)

17. (a) What happens when sodium and other alkali metals react with water? Explain CO3-Ana (16)
- Or
- (b) Why periodic inspection is essential in replacement of safety? Explain. CO3-Ana (16)
18. (a) What are the Typical work activities which causes Hazards? Explain. CO1-U (16)
- Or
- (b) Explain briefly about Explosion & fire. CO1- U (16)
19. (a) Explain fault tree analysis used in quantifying risk. CO1- U (16)
- Or
- (b) Write short notes on chemical and radiation hazards. CO1- U (16)
20. (a) Discuss the role and measures taken by the government for ensuring safety in industries. CO2- App (16)
- Or
- (b) Discuss the basic rules and requirements which govern the chemical industries. CO2- App (16)

