Roll No_____ **ID: RLI-095407**

Ist Year/One Year Post Diploma in Industrial Safety
Branch: Industrial Safety
Subject Name: Safety in Chemical Industry

Time Allowed : 3 Hrs. **MM:100**

Section –A

Note: Multiple Choice questions. All questions are compulsory. 10x1=10

Q.1 Which of the following methods is NOT commonly used for non-destructive testing (NDT) of vessels?
a) Ultrasonic testing (UT)
b) Visual testing (VT)
c) Radiographic testing (RT)
d) Destructive testing (DT)

Q.2 What is the purpose of a pressure test on vessels?
a) To assess the structural integrity and strength of the vessel
b) To check for leaks and ensure tightness of seals
c) To verify compliance with design specifications
d) All of the above

Q.3 Which regulatory body often sets standards and guidelines for the testing and inspection of vessels?
a) Occupational Safety and Health Administration (OSHA)
b) American Society for Nondestructive Testing (ASNT)
c) American Petroleum Institute (API)
d) International Organization for Standardization (ISO)

Q.4 What is the primary criterion for a plant to be designated as a Major Accident Hazard (MAH) unit?
a) High production capacity
b) Proximity to densely populated areas
c) Handling or storage of hazardous substances above specified threshold quantities
d) History of safety incidents

Q.5 Which of the following metals is most susceptible to corrosion?
a) Stainless steel
b) Aluminum
c) Gold
d) Platinum

Q.6 Which of the following is a common source of toxic releases in industrial settings?
a) Mechanical failures
b) Human errors
c) Chemical spills
d) All of the above

Q.7 What is the main concern associated with explosions in the workplace?
a) Loss of revenue
b) Loss of life
c) Employee turnover
d) None of the above

Q.8 Which of the following is NOT a recommended practice when breaking pipelines?
a) Rushing the process to minimize downtime
b) Following established procedures and protocols
c) Using appropriate tools and equipment
d) Communicating effectively with team members

Q.9 What is the primary concern associated with vapor cloud formations in industrial environments?
a) Reduced visibility
b) Environmental pollution
c) Fire and explosion hazards
d) All of the above

Q10 Which regulatory body often sets standards and guidelines for managing vapor cloud formations and combating fires?
a) Environmental Protection Agency (EPA)
b) Occupational Safety and Health Administration (OSHA)

c) National Fire Protection Association (NFPA)
d) United Nations Industrial Development Organization (UNIDO)

Section-B

Note: Objective type questions. All questions are compulsory. 10x1=10

Q.11 Presence of impurities can contribute to the initiation of a runaway reaction.
(a) True
(b) False

Q.12 _____is subsonic combustion propagating through heat transfer; hot burning material heats the next layer of cold material and ignites it.

Q.13 Dispersion modeling used for in environmental science for Predicting the spread of pollutants in the atmosphere
(a) True
(b) False

Q.14 _____inspection technique is commonly used to detect internal defects in materials without causing damage?

Q.15 The primary goal of using inspection techniques for plants is to maximize profits?
(a) True
(b) False

Q.16 The role of a catalyst in an exothermic reaction is to _____ the rate of the reaction.

Q.17 LC50 refers to the _____of a substance in air or water that is lethal to 50% of the test population (usually animals) within a specified exposure period, typically expressed in terms of parts per million (ppm) or milligrams per liter (mg/L).

Q.18 HAZOP is a structured and systematic technique used to identify potential hazards and operability issues in industrial processes, particularly in the chemical and process industries.
(a) True
(b) False

Q.19 The acronym "CAS" refer to in an MSDS is _____

Q.20 _____is the process of routinely measuring the material thickness of equipment such as piping, tubing, pressure vessels, or tanks.

Section –C

Note: Short answer type Questions. Attempt any twelve questions out of fifteen questions. 12x5=60

Q.21 Colour Coding
Q.22 Runaway Chemical Reactions
Q.23 Instrumentation for safe plant operations
Q.24 Shut down procedure in chemical plant
Q.25 Upper explosive limit
Q.26 Vapour Cloud Formations And Combating.
Q.27 UN Classification of chemicals
Q.28 Non-destructive testing
Q.29 Classification of dangerous goods
Q.30 Chemical compatibility consideration with an example
Q.31 Explosive range of LPG
Q.32 Spark arrestors
Q.33 Corrosion
Q.34 On Site And Off Site Emergency Plans
Q.35 Indian Explosives Act And Rules

Section-D

Note: Long answer questions. Attempt any two questions out of three questions. 2x10=20

Q.36 Describe the importance of having a comprehensive checklist for specific maintenance and breakdown tasks in an industrial setting. Discuss how such a checklist aids in ensuring equipment reliability, safety, and operational efficiency.

Q.37 Explain the process of developing an emergency preparedness plan for an organization. Discuss the key components that should be included in the plan, such as risk assessment, emergency response procedures, communication protocols, and resource management strategies.

Q.38 Describe in detail the criteria and factors that determine whether a plant or facility qualifies as MAH (Major Accident Hazard) units according to regulatory standards and guidelines.