Roll No _____ **RLI-095407**

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

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

Section –A

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

Q.1 The dispersion model is a ____
a) Two parameter model
b) One parameter model
c) No parameter model
d) Three parameter

Q.2 When a person combs her hair, static electricity is sometimes generated by what process?
a) Friction between the comb and hair transfers electrons.
b) Induction between the comb and hair.
c) Deduction between the comb and hair.
d) Contact between the comb and hair results in a charge.

Q.3 FTA is?
a) Fault Tree Analysis
b) Faulty analysis
c) Fault Tree Analyze
d) Fault Tree Assessment

Q.4 Which of the following is not a chemical-related health hazard?
a) Carcinogenicity
b) Reactivity
c) Corrosivity
d) Toxicity

Q.5 If you transfer chemicals from a labeled container to a portable container, you don't need to comply with standard hazardous material labeling requirements when:
a) You hand the container off to someone else
b) You leave the work area before using the materials
c) You don't use the materials before the end of your work shift
d) None of the above

Q.6 Ammonia becomes an immediate danger to your life and health when it is present at the following level or greater:
a) 10 ppm
b) 30 ppm
c) 300 ppm
d) 1000 ppm

Q.7 In India, MSDS has been mandated under which law?
a) The Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989
b) The Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996
c) The Factories Act, 1948
d) None of the above

Q.8 Which one of the following statements is not correct about GHS?
a) The Acronym "GHS" stands for Globally Harmonized System of classification and labelling of Chemicals.
b) The recommendations by the GHS Committee are contained in purple Book.
c) As per latest recommendations on GHS, the Safety Data Sheet should have information presented under 16 headings.
d) The recommendations of GHS Committee are binding on all Countries of the World.

Q.9 Which one of the following statements is correct about the term "Threshold Limit Value (TLV)"?
a) A concentration level expressed in ppm (part of the vapour per million part of contaminated air) upto which it is believed a worker can be exposed day after day for working without any adverse health effect.
b) A concentration level in ppm (part of the vapour per million part of contaminated air) upto which a worker can be exposed for a day (24 hrs) for working without any adverse health effect.
c) A concentration level in ppm (part of the vapour per million part of contaminated air) upto which a worker can be exposed for 12 hours without any adverse health effect.

d) A concentration level in ppm (part of the vapour per million part of contaminated air) to which it is believed a worker can be exposed for 4 hours without any adverse health effect.
e) None of the above.

Q10 The hazardous chemical can enter the human body through which of the following routes:-
a) Ingestion
b) Inhalation
c) Skin Contact
d) All the above

Section-B

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

Q.11 Flash point, the _____at which a liquid (usually a petroleum product) will form a vapor in the air near its surface that will "flash," or briefly ignite, on exposure to an open flame.

Q.12 In engineering, a _____ is a design feature or practice that in the event of a specific type of failure, inherently responds in a way that will cause no or minimal harm to other equipment, to the environment or to people.

Q.13 A flame arrester is a device that stops fuel combustion by extinguishing the flame.
(a) True
(b) False

Q.14 _____is required to restrict the spread of the leaking material, to safely contain within its periphery and to restrict the surface area of the leaking material in order to reduce its evaporation and for ease of fire-fighting or other emergency control activity.

Q.15 Lower explosive limit (LEL) is the lowest concentration of liquid which will burn or explode if ignited.
(a) True
(b) False

Q.16 The median lethal dose (or LD50) is defined as the dose of a test substance that is lethal for ___of the animals in a dose group.

Q.17 Cathodic protection (CP) is a technique used to control the _____of a metal surface by making it the cathode of an electrochemical cell.

Q.18 Upper explosive limit (UEL) is the lowest concentration of a gas or vapor (percentage by volume in air) above which a flame will not spread in the presence of an ignition source (arc, flame, or heat).
(a) True
(b) False

Q.19 _____of a substance is the lowest temperature at which it spontaneously ignites in normal atmosphere without an external source of ignition, such as a flame or spark.

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 Dispersion modeling
Q.22 Kindling temperature
Q.23 Isolated Storage
Q.24 Cathodic Protection
Q.25 Upper explosive limit
Q.26 Water hammer
Q.27 Dyke wall
Q.28 Non-destructive testing
Q.29 Classification of dangerous goods
Q.30Incompatible substances
Q.31 Explosive range of LPG
Q.32 Spark arrestors
Q.33 Combustion
Q.34 Safety valve
Q.35 Hydraulic testing

Section-D

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

Q.36 Explain Safety features of fixed roof tanks for Flammable liquids.
Q.37 Highlight Safety and health hazards in manufacture of chlorine and caustic soda.
Q.38 Describe Unconfined vapour cloud explosion in industries.