

1. A 5 ml vial of benzene was spilled in 400 m<sup>3</sup> laboratory, as an industrial hygienist, how would you respond? and what is your decision? if you know PEL for Benzene = 1 ppm (eight-hour TWA), Density of benzene = 0.8 g/ml and MW of benzene = 78 mg/mmol.
2. A gas occupies a volume of 400cm<sup>3</sup> at 0-degree Celcius and 780mm of Hg. How many litres of volume will the gas occupy at 80-degree Celcius and 780mm Hg.
3. Write the purpose of studying industrial hygiene
4. Health and safety hazards include a wide range of -----, -----, ----- and -----.
5. What are elements of Industrial Hygiene?
6. What is SDS?
7. When the chemical hazardous is present in an industry or anywhere, what is the best idea to control it??

Write true or false to the following statements:

8. Industrial hygiene is the science of protecting and enhancing the health and safety of people at work and in their communities.
9. Sulphur dioxide and ammonia can cause conjunctivitis.
10. Industrial Hygienist investigate and examine the workplace for hazards and potential dangers.
11. There are three different types of Industrial Hygiene hazards.
12. The Human body also has many ways of regulating itself when exposed to hazards.
13. X-irradiation and benzene can cause leukaemia.
14. Evaluation involves identifying the potential hazard that a chemical, physical or biological agent - or an adverse ergonomic situation - poses to health.
15. Common irritants include plants (gardening), antibiotics (pharmaceutical industry), dyes (paint and cosmetic industry), metals (nickel (usually non-industrial), and chromates (cement industry), rubbers and resins.
16. Weak alkaline and acid solutions cause burns.

17. People working with cutting oils can have both irritant and allergic contact dermatitis.
18. The easiest recognizable central nervous system effect is the acute loss of consciousness produced by narcotic agents such as vinyl chloride.
19. Carbon disulphide in viscose rayon industry, speeds up atherosclerosis.
20. Pneumoconiosis is the reaction of the lungs to inhaled mineral dust.
21. Heat stroke is attributed to failure of the heat regulating mechanism and it is characterized by very high body temperature which may rise to (41°C).
22. Control involve identifying potential hazards in the workplace before they are introduced.
  
24. A gas occupies 12.3 liters at a pressure of 40.0 mmHg. What is the volume when the pressure is increased to 60.0 mmHg?

Q. Answer these questions:

25. Write about effects of cold stress.
26. What are STP and NTP?
27. Count skin disorders account for a substantial proportion of industrial diseases that caused by (chemical, physical and biological) and give an example:

Q. Fill the blanks: ----- is

28. stored in the blood for long periods after exposure, this can give rise to issues with ----  
----- in the body for example during pregnancy.
29. Heat disorders include 1-----, 2----- 3-----, 4 -----  
- and 5-----.
30. ----- may cause red cell breakup (haemolysis) and anaemia among industrial workers.
31. The numbness, loss of sensation, muscular weakness, a desire for sleep, coma and death are characters of exposure to ----- stress.

32. The elements of industrial hygiene are -----, -----, ----- and -----.
33. ----- is a significant physical agent in many working environments.
34. -----, -----, ----- and ----- are different Types of Industrial Hygiene Hazards.
35. Anesthetics chemicals like-----, whereas; Hematopoietic toxins like ----- --.
36. A gas occupies a volume of  $400 \text{ cm}^3$  at 0-degree Celcius and 780mm of Hg. How many litres of volume will the gas occupy at 80-degree Celcius and 780mm Hg. (10 marks)

Q. Answer of these questions:

37. Write importance of Industrial Hygiene (IH)
38. How we can control industrial thermal stress, count?
39. What is the temperature of One mole of  $\text{CH}_4$  gas that occupies 20.0L at 1.00 atm pressure in Kelvin?
40. A gas occupies 1.00 L at standard temperature. What is the volume at  $333.0 \text{ }^\circ\text{C}$ ?
41. When the volume of a gas is changed from \_\_\_ mL to 852 mL, the temperature will change from  $315 \text{ }^\circ\text{C}$  to  $452 \text{ }^\circ\text{C}$ . What is the starting volume?
42. A gas occupies  $221 \text{ cm}^3$  at a temperature of 0 C and pressure of 760mm Hg. What will be the volume at 100 C?
43. if a gas occupies a volume of 733 ml at 10 c, at what temperature in c degree, will it occupy a volume of 1225 ml if the pressure remains constant? Which law used
44. If a gas occupies a volume of 800 ml at  $15^\circ\text{C}$ , at what temperature will it occupy a volume of 1000 ml if the pressure remains constant?

