



Introduction: Definitions and concepts

- ❖ **Risk:-** A combination of the probability of occurrence of harm (injury, illness, . death, damage etc) and the severity of that harm.

$$\text{risk} = \text{probability} \times \text{disutility}$$

- 1- **Hazard:-** A source, situation, or act with a potential for causing harm. At workplace categorized: Physical, Chemical and Biological

2- **Chemical:-** a- Smoke.

b- Toxic material.

2- **Physical:-**a-Moving road tankers.

b- Noise.

3-**Biological:-**a-Toxicological lab.

- ❖ **Biohazard:-** The potential source of harm caused by biological agents or toxins

- ❖ **Biosafety:-**The set of containment principles, technologies and practices that are . implemented to prevent exposure to biological agents . and toxins, or . their accidental release.

- ❖ **Biosecurity:-**The set of measures taken to limit the threat posed by sudden . widespread disease or biological contamination, as from biological . warfare, or pandemic outbreaks.

❖ Laboratory safety symbols and hazard signs:.

A-Laboratory safety symbols:-

- 1- Green Eyewash Sign:- this sign to indicate the location of an eyewash station.



2-Green First Aid Sign:- Lab Safety Signs Use this symbol to identify the location of a first aid station.



3-Radiation Symbol:- This radiation symbol is a little fancier than your standard trefoil, but it is easy to recognize the significance of the symbol.



Yellow Optical Radiation



Yellow Radioactive Sign



Yellow Laser Warning



Red Ionizing Radiation

4- Blue Respiratory Protection:- This sign tells you respiratory protection is required



5- Blue Gloves:- This sign means you need to wear gloves or other hand protection.

6-Blue Protective Clothing:- This symbol indicates mandatory use of protective clothing



B- Hazard Symbols :-

1-Health Hazard: A cancer-causing agent (carcinogen) or toxicity substance to respiratory system , reproductive system and organs.



2-Flame: Flammable materials or substances liable to self ignite when exposed to water or air (pyrophoric).



3- Gas Cylinder: Gases stored under pressure, such as ammonia or liquid nitrogen.



4- Corrosion: Materials causing skin corrosion/burns or eye damage on contact.



5- **Flame Over Circle:** Identifies oxidizers. Oxidizers are chemicals that facilitate burning or make fires burn hotter and longer.



6- **Skull and Crossbones:** Substances, such as poisons and highly concentrated acids, which have an immediate and severe toxic effect (acute toxicity).

