

Notes – Maintain Healthy, Safe and Secure Working Environment (Class X IT – 402)

1. Meaning of Health, Safety and Security

- **Health** → Physical, mental and social well-being of employees.
- **Safety** → Freedom from hazards, accidents and risks in workplace.
- **Security** → Protection of employees, equipment and data from harm or damage.

Importance

- Improves efficiency and productivity.
- Reduces accidents and losses.
- Builds confidence and trust among workers.

2. Types of Hazards at Workplace

1. Physical Hazards-

Physical hazards are dangers that we can **see or feel in our surroundings**, like slippery floor, too much noise, poor lighting, or working at height, which may cause accidents or injuries.

- Examples: Slippery floors, uneven surfaces, poor lighting, working at heights.
- Prevention: Warning signs, good lighting, proper flooring.

2. Electrical Hazards-

Electrical hazards are dangers caused by **electricity**, like loose wires, shocks, short circuits, or fire due to electrical faults.

- Examples: Loose/faulty wiring, overloaded circuits, ungrounded equipment.
- Prevention: Earthing, use of fuse/MCB, repair by trained electrician.

3. Fire Hazards-

Fire hazards are dangers that can cause **fire**, like short circuits, burning wires, flammable materials, or careless smoking.

- Examples: Flammable materials, smoking near workplace, short circuit.
- Prevention: Fire extinguisher, fire drills, clear escape routes.

4. Health Hazards-

Health hazards are dangers that can make people **sick or unhealthy**, like dust, smoke, loud noise, or harmful chemicals.

- Examples: Noise, dust, chemical fumes, smoke.
- Prevention: Ventilation, face masks, noise control measures.

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5. Ergonomic Hazards (common in IT jobs)

Ergonomic hazards are dangers that come from **wrong body posture or long working hours**, like back pain, eye strain, or hand pain from typing too much.

- Examples: Poor posture, long sitting hours, repetitive strain injury, eye strain.
- Prevention: Ergonomic furniture, take breaks, monitor at eye level.

6. **Stress Hazards-**

Stress hazards are dangers that affect the **mind and emotions**, like too much work, pressure of deadlines, or conflicts, which can cause tension and health problems.

- Examples: Work overload, conflicts, pressure of deadlines.
- Prevention: Time management, relaxation, healthy environment.

3. **Hazard Control Methods**

- **Elimination** → Remove hazard completely.
- **Substitution** → Replace dangerous thing with safe one.
- **Engineering Controls** → Redesign workplace (e.g., safety guards, ventilation).
- **Administrative Controls** → Rules, schedules, training.
- **PPE (Personal Protective Equipment)** → Helmets, gloves, masks, ear plugs, goggles.

4. **Safety Guidelines (Do's and Don'ts)**

- Store chemicals and tools safely.
- Keep workplace neat and clean, remove waste daily.
- Do not wear loose clothes or jewellery near machines.
- Switch off equipment after work.
- Do not allow untrained people to operate machines.
- Know the location of fire alarms, emergency exit, and first aid box.
- Always follow "No Smoking Zone".

5. **Workplace Quality Measures**

- **Air Quality** → Fresh air, pollution control, proper ventilation.
- **Water Quality** → Safe drinking water, treatment of waste water.
- **Pollution Control** → Reduce vehicles, recycle waste, safe use of pesticides.

Other Important Topics from this Unit-

1. **Difference between Hazard and Risk**

- **Hazard** → Source of possible danger.
- **Risk** → Probability/Chance that the hazard will actually cause harm.
 - Example: Loose wire = Hazard; Chance of getting shock = Risk.

2. **Occupational Health and Safety (OHS)**

- Rules and policies are made so that safety is followed in the workplace.
- The main aim of OHS is to provide a **safe, healthy, and secure work environment**.

3. Importance of Ergonomics

- Correct posture reduces back pain, eye strain, and fatigue.
- Proper chair, desk height, and monitor at eye level are necessary.
- Regular breaks and stretching are important.

4. Emergency Procedures

- Activate the fire alarm.
- Use the emergency exit.
- Use the first aid box.
- Participate in evacuation drills.

5. Pollution and Environment Quality

- Maintaining air and water quality in the workplace is important.
- Pollution control measures (Reduce, Reuse, Recycle) can also be asked in exams.

6. Protective Equipment (PPE)

- Examples: Helmet, Gloves, Goggles, Face mask, Ear plugs.
- Exams often ask questions like “Write two examples of PPE.”

6. Exam Preparation Pointers

Very Short / MCQ type Qs

- Full form of PPE.
- One example of ergonomic hazard.
- One method of hazard control.

Short Answer type Qs

- Difference between Health, Safety and Security.
- List any four safety guidelines.
- Write two examples each of physical and electrical hazards.

Long Answer / Application type Qs

- Why is it important to maintain healthy, safe and secure workplace?
- What precautions should be taken in case of fire in workplace?
- Explain hazard control measures with examples.

Exam-Oriented Qs (Likely to Come)

1. Define hazard and risk.
2. List any two ergonomic hazards.
3. Why is ergonomics important in IT jobs?
4. Write two examples of PPE.
5. State two safety guidelines for workplace.

6. Difference between health, safety, and security.
7. What steps should be taken in case of fire at workplace?

□ **Quick Revision Keywords**

Health → Well-being | Safety → No hazards | Security → Protection

Hazards → Physical, Electrical, Fire, Health, Ergonomic, Stress

Control → Elimination → Substitution → Engineering → Administrative → PPE

Safety → Cleanliness, Proper storage, No smoking, Emergency plan