

Scheme – G

## Sample Test Paper-I

Course Name : Diploma in Chemical Engineering

Course Code : CH

Semester : Fifth

Subject Title : Plant safety and Maintenance

Marks : 25

**17558**

Time: 1 hour

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**Instructions:**

1. All questions are compulsory
2. Illustrate your answers with neat sketches wherever necessary
3. Figures to the right indicate full marks
4. Assume suitable data if necessary
5. Preferably, write the answers in sequential order

**Q1. Attempt any THREE.**

**09 Marks**

- a) State causes of accidents in chemical Industries.
- b) State objectives of safety.
- c) List types of personal protective equipments.
- d) List classes of fire, and describe any one.

**Q2. Attempt any TWO.**

**08 Marks**

- a) Describe the harmful effects of chemicals on human body.
- b) Draw propionate sketches of any four personal protective equipment.
- c) List dangerous properties of chlorine.

**Q3. Attempt any TWO.**

**08 Marks**

- a) Name and describe any four types of hazards related to chemical industries.
- b) List any four sources of noise hazards and protection against them.
- c) Describe with a sketch self-contained breathing apparatus for respiration.

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## Sample Test Paper-II

Course Name : Diploma in Chemical Engineering

Course Code: CH

Semester : Fifth

Subject Title : Plant safety and Maintenance

Marks : 25

**17558**

Time: 1 hour

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**Instructions:**

1. All questions are compulsory
2. Illustrate your answers with neat sketches wherever necessary
3. Figures to the right indicate full marks
4. Assume suitable data if necessary
5. Preferably, write the answers in sequential order

**Q1. Attempt any THREE.**

**09 Marks**

- a) Classify materials based on their state of completion in the manufacturing process.
- b) Classify pallets based on material of construction.
- c) State types of maintenance and importance of preventive maintenance.
- d) List types of safety audit and describe any one of them.

**Q2. Attempt any TWO.**

**08 Marks**

- a) Distinguish between bulk storage and unit load storage method with one example each.
- b) Describe online maintenance of steam trap.
- c) State disadvantages of breakdown maintenance.

**Q3. Attempt any ONE.**

**08 Marks**

- a) State duties or functions of maintenance staff.
- b) Prepare a list any four material handling equipment. State how they differ from each other.

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## Sample Question Paper

Course Name : Diploma in Chemical Engineering

Course Code: CH

Semester : Fifth

Subject Title : Plant safety and Maintenance

Marks : 100

**17558**

Time: 3 hours

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**Instructions:**

1. All questions are compulsory
2. Illustrate your answers with neat sketches wherever necessary
3. Figures to the right indicate full marks
4. Assume suitable data if necessary
5. Preferably, write the answers in sequential order

**Q.1 A) Attempt any THREE of the following:**

**12 Marks**

- a) State losses due to accidents.
- b) List the harmful effects of ammonia on human being.
- c) List the equipment used for breathing and respiratory protection.
- d) Describe maintenance of personal protective equipment. Also state the conditions under which replacement becomes essential

**Q.1 B) Attempt any ONE of the following:**

**06 Marks**

- a) List the sources of Radioactive Hazards with one example each.
- b) Describe the various protections used against noise. Write disadvantages of Ear plugs.

**Q.2 Attempt any FOUR of the following:**

**16 Marks**

- a) Describe Physiological effect of electricity.
- b) Draw proportionate sketch of any four personal protective equipment.
- c) State the objectives of safety audit?
- d) List different types of pneumatic system. Explain any one with a systematic diagram.
- e) Describe with neat diagram construction and working of soda acid type fire extinguisher.

**Q.3 Attempt any FOUR of the following:**

**16 Marks**

- a) List the precautions taken during handling mechanical hazards.
- b) State the causes of poor material handling.
- c) List any four material handling equipment. State how they differ from each other.
- d) Describe with diagram online maintenance for rota meter.
- e) Why maintaining plant maintenance record is important. What are its benefits?

**Q.4 A) Attempt any THREE of the following:**

**12 Marks**

- a) Classify materials based on their state of completion in the manufacturing process.
- b) Why mass flow pattern is preferred over core flow pattern.
- c) List the causes of equipment breakdown.
- d) Describe with neat sketch operation and use of fire buckets and fire hydrant.

**Q.4 B) Attempt any ONE of the following:**

**06 Marks**

- a) Which materials are stored in pile form? Draw neat sketches showing material feeding and reclaiming arrangement for the pile.
- b) Describe procedure for safety audit.

**Q.5 Attempt any TWO of the following:**

**16 Marks**

- a) Describe with labeled diagram construction and working of foam type fire extinguisher.
- b) Describe the duties, function and responsibilities of plant maintenance engineering department.
- c) Describe preventive maintenance and its objective.

**Q.6 Attempt any TWO of the following:**

**16 Marks**

- a) Name the types of pallet and their material of construction.
- b) Describe procedure for startup of the chemical plant.
- c) Explain procedure for shutdown maintenance.