

**POST GRADUATE CERTIFICATE IN
INDUSTRIAL SAFETY/POST
GRADUATE DIPLOMA IN
INDUSTRIAL SAFETY
(PGCINDS/PGDINDS)
Term-End Examination**

December, 2022

**MIS-024 : MECHANICAL AND ELECTRICAL
SAFETY MANAGEMENT**

Time : 3 Hours

Maximum Marks : 70

Note : Attempt **six** questions in all. Question No. 1
is compulsory.

1. (A) Objective type questions : 2 each
- (i) Arc blast is caused by :
- (a) Poor contact within electrical wire species

- (b) Radio frequency emissions from high-power transmitters
 - (c) Discharge of high electrical current through open air
 - (d) Failure of lock-out and tag-out electrical breakers
- (ii) Current measurements are more dangerous to make with a multimeter than voltage measurements because :
- (a) You must use both hands to take the measurement.
 - (b) Most multimeters are unfused.
 - (c) The resulting magnetic fields may be very strong.
 - (d) The circuit must be broken (opened).
- (iii) According to the IS code, the colour of earth wire is usually :
- (a) Red
 - (b) Green
 - (c) Yellow
 - (d) Black

(iv) Checklist for Job Safety Analysis (JSA) consists of :

(a) Work area, material, machine, tools

(b) Men, machine, material, tools

(c) Men, machine, work-area, tools

(d) Men, work-area, material, tools

(v) The purpose of CPR is to :

(a) Stabilize body temperature to avoid hypothermia

(b) Build upper body strength

(c) Dislodge blood clots within the victim's lungs.

(d) Maintain oxygenated blood circulation

(B) Short answer type questions : 2 each

(i) Write down the various methods of safeguarding.

(ii) Differentiate between fixed path and variable path equipments.

- (iii) What is the aim of correct material handling ?
- (iv) Write down the various safety requirements in welding workshop.
- (v) Enlist Personal Protective Equipments (PPE) for arc flash workplace.
2. (a) Write down the various aspects that have to consider for hazard identification and prevention. 5
- (b) What are the main responsibilities of machine operators and employers in ensuring job safety ? 5
3. (a) Discuss various risk factors associated with manual handling activities. How can it be avoided ? 5
- (b) What are the elements of material handling ? Write down the advantages of correct material handling. 5
4. (a) Explain Reliability and Mean Time Between Failures (MTBF) with suitable examples. 5

- (b) Why are Push-Back and Anti-Kick-Back systems required in timber industries ?
Explain in brief. 5
5. (a) Describe the steps taken to control the preliminary damage after gas leakage accident. 5
- (b) What are the precautions need to be taken when working near high voltage lines ? 5
6. (a) Write down the safety measures while doing Megger test. 5
- (b) Discuss various safety tips when working on transformer. 5
7. (a) What is CPR ? What are the procedures of first aid to be followed for unconscious electric-shock victims ? 5
- (b) Discuss about the various electrical tools and its uses with appropriate diagrams. 5

8. Write short notes on any *two* of the following :

5+5

- (a) Globally Harmonized System (GHS) Labelling
- (b) Safe Working Practices
- (c) Types of machine guards