



TNPSC CTSE - 2025

DIPLOMA/ITI LEVEL

**INDUSTRIAL ROBOTICS AND
DIGITAL MANUFACTURING
TECHNICIAN**

POST CODE: 3629

SUBJECT CODE: 538



SAFETY

Safety means freedom or protection from harm, danger, hazard, risk, accident, injury or damage.

Workplace Hygiene

- **Anticipation (Identification)**
- **Recognition (Acceptance)**
- **Evaluation (Measurement & Assessme**
- **Control of Worplace Hazard**

Types of workplace health hazards of employees

- | | |
|-------------------------|-------------------------|
| 1 Physical Hazards | 2 Chemical Hazards |
| 3 Biological Hazards | 4 Physiological Hazards |
| 5 Psychological Hazards | 6 Mechanical Hazards |
| 7 Electrical Hazards | 8 Ergonomic Hazards. |



SAFETY PRACTICE

Causes for accidents: Normally accidents do not just happen. They are caused.

Causes for accidents are many. Some of the important causes are listed below.

- Unawareness of danger
- Disregard for safety
- Negligence
- Lack of understanding of proper safety procedures
- Untidy condition of workplace
- Inadequate light and ventilation
- Improper use of tools
- Unsafe conditions



SAFETY SIGNS

The four basic categories of signs are as follows

- **Prohibition signs**
- **Mandatory signs**
- **Warning signs**
- **Information signs**

Safety is a concept, understand it.
Safety is a habit, cultivate it.

Safety Slogan
A Safety rule breaker, is an accident maker



SAFETY PRACTICE

Prohibition signs



Shape	Circular
Colour	Red border and cross bar. Black symbol on white background
Meaning	Shows it must not be done
Example	No smoking

Mandatory signs



Shape	Circular
Colour	White symbol on blue background
Meaning	Shows it must be done
Example	Wear hand protection.

Warning signs



Shape	Triangular
Colour	Yellow background with black border and symbol
Meaning	warns of danger

Information signs



Shape	Square or oblong
Colour	White symbols on green background.
Meaning	Indicates or gives information of safety provision.



PERSONAL PROTECTIVE EQUIPMENT (PPE)

Devices, equipment, clothing are used by the employees, as a last resort, to protect against hazards in the workplace.

The Factories Act, 1948 and several other labour legislations 1996 have provisions for effective use of appropriate types of PPE.

Categories of PPEs: Depending upon the nature of hazard, the PPE is broadly divided into the following two categories:

1 Non-respiratory: Those used for protection against injury from outside the body, i.e. for protecting the head, eye, face, hand, arm, foot, leg and other body parts

2 Respiratory: Those used for protection from harm due to inhalation of contaminated air.

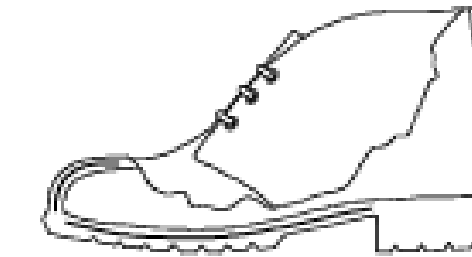
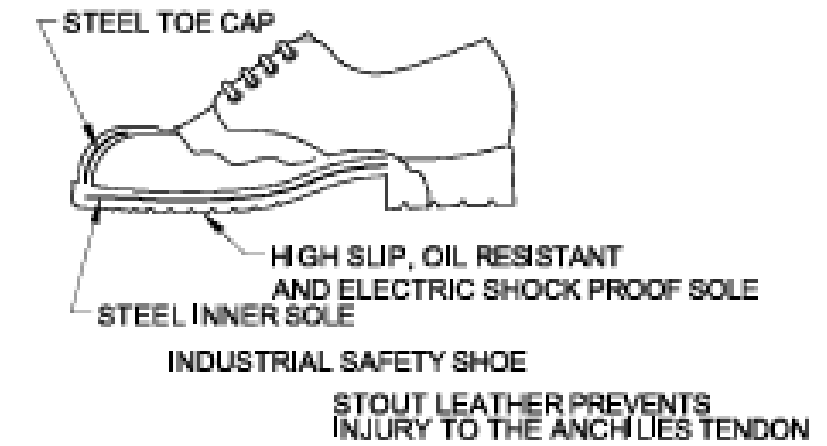


PERSONAL PROTECTIVE EQUIPMENT (PPE)

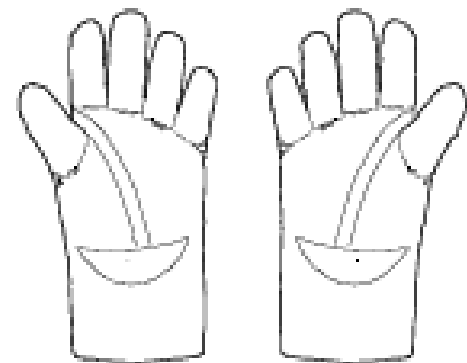
No.	Title
PPE1	Helmet
PPE2	Safety footwear
PPE3	Respiratory protective equipment
PPE4	Arms and hands protection
PPE5	Eyes and face protection
PPE6	Protective clothing and coverall
PPE7	Ears protection
PPE8	Safety belt and harnesses



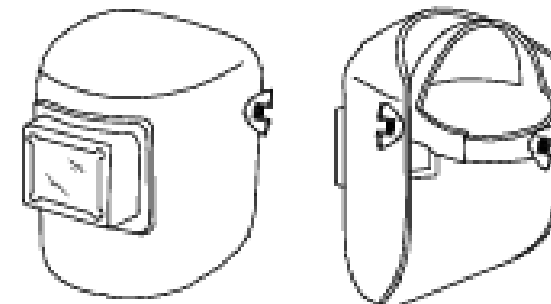
HELMET



INDUSTRIAL SAFETY BOOT



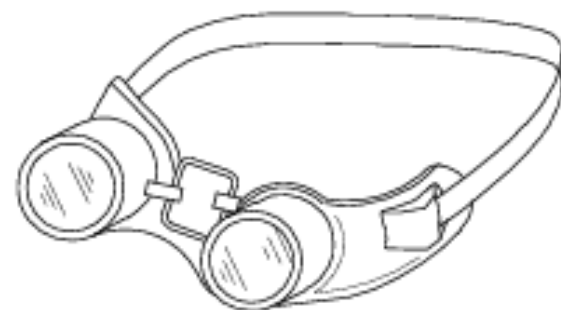
GLOVES



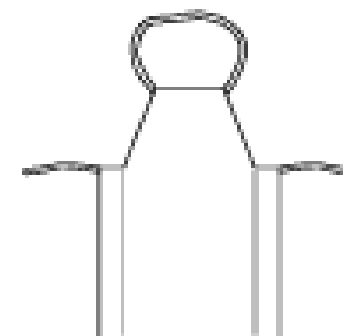
WELDING HELMET



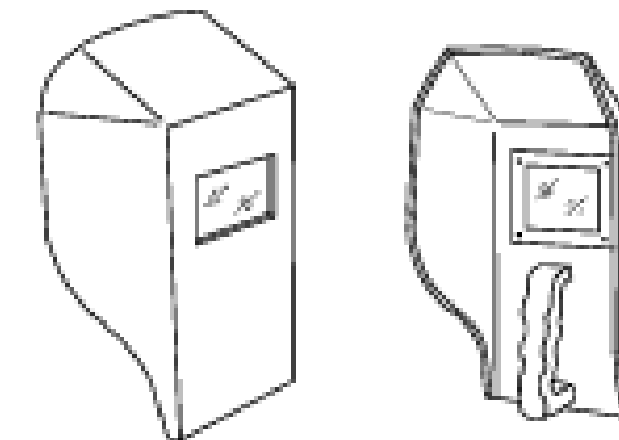
LEG GUARDS



GOGGLES



APRON



HAND SCREEN



PERSONAL PROTECTIVE EQUIPMENT (PPE)

Common type of personal protective equipments and their uses and hazards are as follows

Types of Protection	Hazards	PPE to be used
Head protection (Fig 1)	1 Falling objects 2 Striking against objects 3 Spatter	Helmets
Foot protection (Fig 2)	1 Hot spatter 2 Falling objects 3 Working wet area	Leather leg guards Safety shoes Gum boots
Nose (Fig 3)	1 Dust particles 2 Fumes/ gases/ vapours	Nose mask
Hand protection (Fig 4)	1 Heat burn due to direct contact 2 Blows sparks moderate heat 3 Electric shock	Hand gloves
Eye protection (Fig 5, Fig 6)	1 Flying dust particles 2 UV rays, IR rays heat and High amount of visible radiation	Goggles Face shield Hand shield Head shield
Face Protection (Fig 6, Fig 7)	1 Spark generated during Welding, grinding 2 Welding spatter striking 3 Face protection from UV rays	Face shield Head shield with or without ear muff Helmets with welders screen for welders
Ear protection (Fig 7)	1 High noise level	Ear plug Ear muff
Body protection (Fig 8, Fig 9)	1 Hot Particles	Leather aprons



FIRST-AID

First aid is defined as the immediate care and support given to an acutely injured or ill person, primarily to save life.

First aid procedure often consists of simple and basic life saving techniques that individual performs with proper training and knowledge.

ABC of first aid

ABC stands for airway, breathing and circulation.

- **Airways:** Attention must first be brought to the airway to ensure it is clear. Obstruction (choking) is a life threatening emergency.
- **Breathing:** Breathing if stops, the victim may die soon. Hence means of providing support for breathing is an important next steps. There are several methods practiced in first aid
- **Circulation:** Blood circulation is vital to keep person alive. The first aiders now trained to go straight to chest compressions through CPR methods.

CPR - Cardiopulmonary Resuscitation

If the person remains unresponsive, carefully roll them on the side (recovery position) and open his airway.

ELECTRICAL SAFETY

The severity of an electric shock will depend on the level of current which passes through the body and the length of time of contact. Do not delay, act at once. Make sure that the electric current has been disconnected.

SEVERITY OF SHOCK

- Age of the person
- Not wearing insulating footwear or wearing wet foot wear
- Weather condition
- Floor is wet or dry
- Mains voltage etc.



5S CONCEPT

The terms (5s) 5 steps are

Step 1: SEIRI (Sorting out)

Step 2: SEITON (Systematic arrangement)

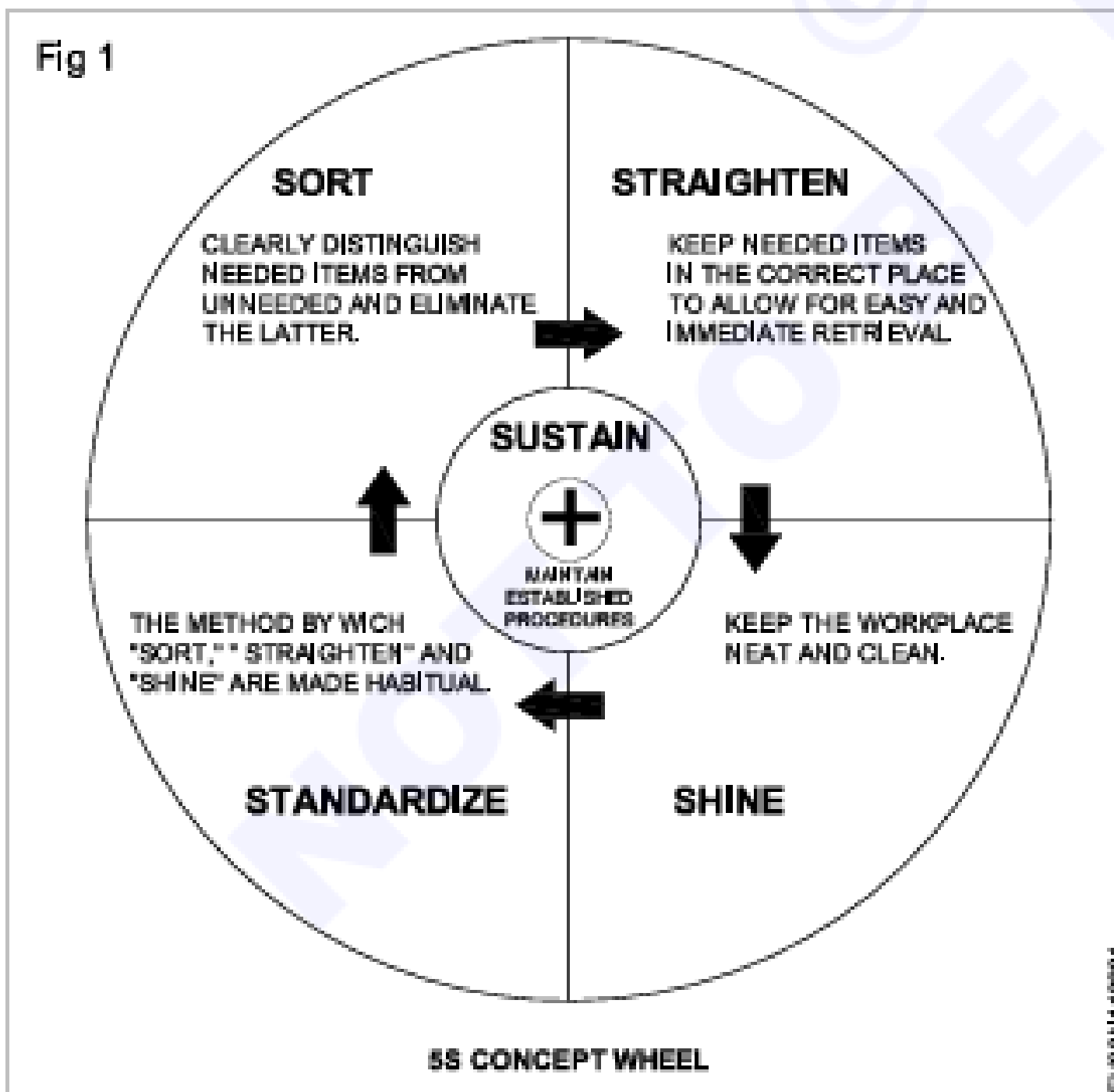
Step 3: SEISO (Shine cleanliness)

Step 4: SEIKTSU (Standardization)

Step 5: SHITSURE (Self discipline)

Benefits of 5s

- Work place becomes clear and better organised.
- Working in workplace becomes easier.
- Reduction in cost.
- People tend to be more disciplined.
- Delay is avoided.
- Less absenteeism.
- Better use of floor space.
- Less accidents.
- High productivity with quality etc.





MCQS

What is the full form of PPE?
PPE का फुल फॉर्म क्या होता है?

- A1
: Personal Protection Equipment
Personal Protection Equipment
- A2
: Professional Protection Equipment
Professional Protection Equipment
- A3
: Personal Professional Equipment
Personal Professional Equipment
- A4
: Professional Proactive Equipment
Professional Proactive Equipment

What is letter B denotes in ABC of first aid?
प्राथमिक चिकित्सा के ABC में अक्षर B क्या दर्शाता है?

- A1
: Breathing
सांस लेना
- A2
: Burning
जलता हुआ
- A3
: Boosting
बढ़ाने
- A4
: Bathing
नहाना

What is the Instrument used for CRP test?
सीआरपी परीक्षण के लिए किस उपकरण का उपयोग किया जाता है?

- A1
: Automatic exterior defibrillators
स्वचालित बाहरी डीफिब्रिलेटर
- A2
: Automatic external defibrillators
स्वचालित बाहरी डीफिब्रिलेटर
- A3
: Automated exterior defibrillators
स्वचालित बाहरी डीफिब्रिलेटर
- A4
: Automated external defibrillators
स्वचालित बाहरी डीफिब्रिलेटर



MCQS

Which is 5s concept seiton mean ?
5s कॉन्सेप्ट सीटॉन का मतलब क्या है?

A1
: Discipline

अनुशासन

A2
: Cleaning

सफाई

A3
: Sorting

छंटाई

A4
: Arrangement

व्यवस्था

Which country 5s concept invented?
5s कॉन्सेप्ट का आविष्कार किस देश में हुआ?

A1
: India

भारत

A2
: Japan

जापान

A3
: USA

USA

A4
: Srilanka

श्रीलंका



THANK YOU

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