Theory book for domain trade

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A.) Basic Mathematics:

1. Units of Weight
   1. 1 Gram = 10 Milli Gram
   2. 250 Gram = 1/4 Kilo Gram
   3. 500 Gram = 1/2 Kilo Gram
   4. 1 Kilo Gram = 1000 Gram
   5. 10 Kilo Gram = 1 Quintal
   6. 1000 Kilo Gram = 1 Ton

2. Converting Units of Measurements
   1 m = 10 Dm
   = 100 cm
   = 1000 mm
   1 m² = 1 m x 1 m
   = 10 x 10 = 100 dm²
   = 100 x 100 = 10000 cm²
   = 1000 x 1000 = 1000000 mm²
   1 m³ = 1 m x 1 m x 1 m
   = 10 x 10 x 10 dm³
   = 1000 dm³
   = 100 cm x 100 cm x 100 cm
   = 1000000 cm³
   1 m³ = m x m x m
   = 1000 mm x 1000 mm x 1000 mm
   = 1000000000 m³
   1 m³ = 1000 kg / m³
   = 1 kg / 100 x 100 x 10 cm²
   = 1 kg / 1000 cm³
   = 0.001 kg/cm³
1: 100 Scale

100 cm = 1 Unit
100 cm = 1 cm in scale
1 m = 1 cm

1: 50 Scale

50 cm = 1 Unit
50 cm = 1 cm in scale
1/2 m = 1 cm
1 m = 2 cm

1: 25 Scale

25 cm = 1 Unit
1/4 m = 1 cm
1 m = 4 cm

1: 20 Scale

20 cm = 1 Unit
1/5 m = 1 cm
1 m = 5 cm

1: 5 Scale

5 cm = 1 m
4. Determination of Geometrical Areas - Triangles

Area of the triangle
\[ A = \frac{1}{2} bh \]

Area of the equilateral triangle
\[ A = \frac{\sqrt{3}}{4} a^2 \]

Area of the right angled triangle
\[ A = \frac{1}{2} \text{ product of sides containing right angle} \]

Area of the right isosceles triangle
\[ A = \frac{1}{2} a^2 \]

Area of triangle when measurements of three sides are given
\[ A = \sqrt{S(S-a)(S-b)(S-c)} \]
where \( S = \frac{a+b+c}{2} \)

5. Areas of quadrilaterals

Area of the quadrilateral
\[ A = \frac{1}{2} d (h_1 + h_2) \]

Area of the trapezium
\[ A = \frac{1}{2} h (a + b) \]

Area of Rhombus
\[ A = \frac{1}{2} d_1 d_2 \]
Area of the Rectangle $A = l \times b$

Area of Square $A = S \times S = S^2$

Area of a square when diagonal is given $A = \frac{1}{2} a^2$

6. Circles

Area of circle $A = \pi r^2$

Area of Sector $A = \frac{x}{360} \pi r^2$

$A = \frac{1}{2} \pi r$

7. Volumes

Volume of Cube $V = S^3$

Volume of Cuboid $V = l \times b \times h$

Volume of any geometrical figure is $V = \text{Area of base} \times \text{height}$

Volume of Cylinder $V = \pi r^2 h$

Volume of Cone $V = \frac{1}{3} \pi r^2 h$
8. Determination of weights

1 Kilogram = 1000 grams
½ Kilogram = 500 grams
¼ Kilogram = 250 grams

9. Determination of Angles

Generally angles are measured by using protractor.

Procedure of measuring angle

Protractor should be placed at the point which the angle is to be measured and measured in the direction of the line which side it is producing.

1. Sum of angles in a triangle is 180°.
If two angles are given, then you can find third angle using sum of three angles.
2. Sum of 4 angles in a quadrilateral is 360°. Using this we can find required angle.
3. Central angle of circle is 360°

10. Basic Trigonometry

In a right angle triangle side opposite to a right angle is called hypotenuse.

\[
\sin \theta = \frac{\text{side opposite to } \theta}{\text{Hypotenuse}}
\]

\[
\cos \theta = \frac{\text{side adjacent to } \theta}{\text{Hypotenuse}}
\]

\[
\tan \theta = \frac{\text{side opposite to } \theta}{\text{side adjacent to } \theta}
\]
11. Determination of pressure by given load

\[ P = \frac{\text{Load}}{\text{Area}} \]  
(Units: Kgs per sq cms, etc.)

12. Converting Mathematical Formula

In every formula, we can have auxiliary formulae depending upon the no. of variables present in it. If a formula has 3 variables in it, then it will have 3 auxiliary formulae.

Ex: \[ I = \frac{(PTR)}{100} \]

\[ P = \frac{(100) I}{TR} \]

\[ T = \frac{(100) I}{PR} \]

\[ R = \frac{(100) I}{PT} \]
B.) Drawing Reading:

- Elevation – It is an outline of completed structure.
- Plan – It is a top view of any structure.
- Section – It shows the details of a structure of any vertical cut.
- Various Types of Scales.
- Symbols and Legends.

The following figure shows Plan, Elevation and Section of a culvert.

C.) Measurements & Calculations:

Units used in taking measurements – FPSI System, MKS System and CGS System.

FPSI System: The measurements will be in foot, pound and second.

MKS System: The measurements will be in meter, kilogram and second.

CGS System: The measurements will be in centimetre, gram and second.
### Steel weight:

Bar bending and steel fixing table showing weight of rod Kg/m

<table>
<thead>
<tr>
<th>Bar-diameter (mm)</th>
<th>6 Ø</th>
<th>8 Ø</th>
<th>10 Ø</th>
<th>12 Ø</th>
<th>14 Ø</th>
<th>16 Ø</th>
<th>20 Ø</th>
<th>25 Ø</th>
<th>30 Ø</th>
<th>32 Ø</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length (Mtr)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>1</td>
<td>0.222</td>
<td>0.395</td>
<td>0.617</td>
<td>0.889</td>
<td>1.210</td>
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<td>1.778</td>
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<td>11.11</td>
<td>12.642</td>
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<td>2.667</td>
<td>3.63</td>
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<td>7.407</td>
<td>11.574</td>
<td>16.685</td>
<td>18.963</td>
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<tr>
<td>4</td>
<td>0.888</td>
<td>1.58</td>
<td>2.468</td>
<td>3.556</td>
<td>4.84</td>
<td>6.32</td>
<td>9.876</td>
<td>15.432</td>
<td>22.22</td>
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<td>5</td>
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<td>1.975</td>
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<td>5.334</td>
<td>7.26</td>
<td>9.48</td>
<td>14.814</td>
<td>23.148</td>
<td>33.33</td>
<td>37.926</td>
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<tr>
<td>7</td>
<td>1.554</td>
<td>2.765</td>
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<td>17.283</td>
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<td>38.385</td>
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<tr>
<td>8</td>
<td>1.776</td>
<td>3.16</td>
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<td>29.628</td>
<td>46.296</td>
<td>66.66</td>
<td>75.852</td>
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E) Bar Bending Shapes and Its Uses

<table>
<thead>
<tr>
<th>Description</th>
<th>Shape</th>
<th>Uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Link</td>
<td><img src="image1.png" alt="Shape" /></td>
<td>This keeps the two bars in position.</td>
</tr>
<tr>
<td>Kink</td>
<td><img src="image2.png" alt="Shape" /></td>
<td>Bending of the bar at the required angle to place one bar over another bar.</td>
</tr>
<tr>
<td>Crank</td>
<td><img src="image3.png" alt="Shape" /></td>
<td>It is used to overlap the bars and most it is used in the column.</td>
</tr>
<tr>
<td>Stirrup</td>
<td><img src="image4.png" alt="Shape" /></td>
<td>Stirrups are used to keep bars in their place at right angles in column, keeps position the bars longitudinal in beams and to take the shear stress.</td>
</tr>
<tr>
<td>'L' Bend</td>
<td><img src="image5.png" alt="Shape" /></td>
<td>It is used to withstand the bar to stand in the exact position.</td>
</tr>
<tr>
<td>'U' Bend</td>
<td><img src="image6.png" alt="Shape" /></td>
<td>It is used in between the two mats in retaining walls.</td>
</tr>
<tr>
<td>Spacer</td>
<td><img src="image7.png" alt="Shape" /></td>
<td>It is used to keep the bars and links in exact place.</td>
</tr>
<tr>
<td>Chair</td>
<td><img src="image8.png" alt="Shape" /></td>
<td>It is used to separate the cluster of bars that are above and under and hold them strong.</td>
</tr>
</tbody>
</table>

F) Tools & Equipments: The tools and equipment used in bar bending work are


1. Marking and measuring tools:
1.1. Measuring tape: Useful for measuring the rods. The measuring tapes are available in 3M, 5M, 15M and 30M.

![Images of measuring tapes](image9.png)
1.2. Marking Tools:

Chalk pieces: Chalk pieces are used for marking after the rods are measured.

1.3. Checking Tools:

Plumb-bob: It is used in placing the columns upright.

2. Working Tools: They are of 2 types: a) Cutting tools b) Bending tools

2.1. Cutting Tools: The equipments used to cut after the marking is done on the rods.

I. Rail piece: This is in the form of letter "I". It is also known as a shear plate. Rods are placed over it and cut.

II. Cutting Chisel: This is placed on the marking on the rod and then cutting is done.

III. Sledge Hammer: Chisel is placed on the marking on the rod and sledge hammer is used to hit it. This is available in 8lb, 10lb, and 12lb. (1lb = 0.5 Kgs).

IV. Cutting Pliers: This is used to cut the binding wire.
3. Bending tools: Bending tools are used to bend the rods to the required angle.

3.1. Lever: This is useful in bending the rod and making it straight. This is available in required size to bend the bars of diameter 6mm, 8mm, 10mm, 12mm, 16mm, 20mm, 25mm and 32mm.

3.2. Binding Hook: Binding hook is used to keep two rods in their place and tie a knot with binding wire.

G.) Manual Bar-bending Work Table: Pin plate is fixed above and it is made up of wood.

Pin Plate: Three pins or small rods are welded on a plate. The size of plate is 0.4" x 0.4". The distance between the two pins: d = 5mm. d = the diameter of the rod to be bent.

H.) Bar bending Machine: Used to bend and cut the rods.

I.) Cutting Machine
[b.] Types of Steel:

a) Mild steel

Mild steel:
The surface of these rods is smooth. They are available in 6mm, 8mm, 10mm, 20mm, 25mm, 28mm, and 32 mm diameter. The rods can be used as secondary bars. If mild steel bars are used, it is necessary to have a development length.

b) High yield strength deformed bars:
The surface of these rods is rough. By using this steel, the bonding between concrete and steel is more. This is available in 8 mm, 10mm, 12mm, 16mm, 20mm, 25mm, 28mm, 32mm, and 40mm and the length of the bar will be 10 to 12 meters.

Fabric steel: This is a collection of rods. Steel bars or steel wires are formed into an interconnected mesh through welding. These fabrics are generally made by welding one after the other in twisted square bars. Fabric steel is used in solid concrete slabs, suspended slabs and cylindrical shelves etc. The standard size of the fabric steel mesh is length 48 meters to 72 meters and width 2.4 meters.

c) Fabric steel

TMT steel: TMT means Thermo-Mechanical treated steel and it is used widely in the present day constructions.
K.) Terms & Terminology:

Back Stop: When the rod is bent on the work bench, back stop is used to keep it in place and to prevent the rod from slipping.

Bar: Bar is the iron rod.

Bar Mark: The name given in bar bending schedule to identify the rod in the plans.

Binding Pin: The iron pin used to bend the rod. Three small rods are arranged on a plate.

Binder: The instrument used to place the rods in position and bind them is called binder.

Binding Wire: Steel rods are placed in their positions and tied with iron wire so that they do not move. This wire is called binding wire. Gage wire of 16 or 18 is used for it.

Bottom Mat: The steel components or the mesh that is used at the bottom or the last portion of the construction is called bottom mat.

Cage: The arrangement of steel rods made according to the shape given in the plan or the frame.

Chair: The member used to separate the cluster of rods that are above and under and hold them strong.

Clear Cover: The distance between the steel rod face and the concrete face is called clear cover.

Expansion Joint: R.C.C contracts or expands with the changes in the temperatures. Empty spaces are left between two concrete members. This is called expansion joint.

Over Lap: Kinking of one rod over another rod with the required length is called overlap.

Kink: Bending of the rod at the required angle with the required thickness and required length to place one rod over another is called kinking.

Links: The shafts bent in a particular shape to hold the main rods together.

Spacer: The instrument used to keep the bars and links in exact place.

Stirrup: Stirrups are used to keep bars and rods in their place at right angles to the longitudinal reinforcement and to take the shear stress.

Tolerance: Convenient difference.

Top Mat: The mesh or the cluster of rods that is made on the top in construction is called top mat.

Spaing of Rods: To bear and distribution of load in the columns, beams, slabs etc.

K.) Maintenance of cover:

Cover is used to protect the steel from humidity and other chemical substances. To protect the steel in the R.C.C structure maintenance of cover is necessary.
(L.) Ties & Types of Ties

Slash Tie: Used to keep the bars in position. This is mostly used in extra bars and the knots of running ties. With the help of a binding hook, the binding wire is tied.

Ring Slash Tie: This tie's knot is also like that of the slash tie. But it comes like one round of ring around the rod. That is the reason why it is called ring slash tie. Usually there is a chance for the rod to move in slash tie. To avoid this it is tied with a ring around. This is used for columns, beams and key bars corners. This tie is strong due to the presence of ring. Rods will not move. This is used for retaining walls and steel fabrication of R.C.C. walls.

Crown tie: This tie holds the bar from both sides. This knot is used at all places generally. There are two knots in this tie.

Hair pin tie: This tie is generally tied at all places where the bars come horizontal.

Ring Hair pin Tie: This tie is in the shape of a hair pin. In order to fasten the rod, pin tie is applied after the ring is prepared. This is generally used at longitudinal bars that come in the corners. The tie will be stronger if ring is planted.

Splice Tie: This tie is used to increase the length of the rods. This is used near the laps and bundle reinforcement. Because of this tie, the vertically placed rods will not slip and remain in their positions.
M.) Steel fixing: Steel fixing is the tying up of the bent rods to the required shapes.

N.) Occupational Health and Safety (OHS)
O.) Conventional Shuttering / Formwork

Formwork is meant for

- To give shape to concrete
- To be removed after hardening of concrete
- It should be accurate, strong & well made
- The surface of the form affects the look
- Sufficient care is to be taken to avoid leak, bulge, sag or movement

Placement

Formwork must be placed such that, it is easily removable and reusable.

Material

Iron Shutters / Timber / Plywood

Typical Applications

Footings, Columns, Slab on ground, Walls, Suspended beams and slabs

Steps to do formwork

1. Plan
2. Dimensions
3. Material
4. Tools
5. Location
6. Specification

Plan

Observe the plan for formwork to find the form, direction of the construction

Dimension

From the plan list out the dimensions (length, breadth, height, angle etc.)

Material

Choice of material based on the availability & also finish required on surface

Tools

Plumb bob, measuring tape, claw hammer, hammer, saw, pliers, nails, form ply, iron shutters, timber edges

Location

Based on plan locate the spot at which formwork is to be done.
Specification

Specifications should be thoroughly followed to reach the required shape & size.

P.) Good House Keeping

Store and stack materials and equipment in the designated storage area when not in use.

****
OH&S

Occupational Health & Safety

1. Workplace Safety
2. First-Aid
Contents

1. Introduction

2. Workplace Safety
   - Basics
   - Keeping our workplace in order
     - Working at height
     - Having Positive Attitude
   - Summary

3. Safety Instructions for use of Crane & Lifting devices

Introduction

When we leave for work:
- we do so fully expecting that when our shifts are over, we will return home safely

While at work
- we remind ourselves “Watch What We Are Doing” we don’t want any problems.
- we consider anything that can go wrong
- we follow safety work practices
- our goal is to prevent accidents those can happens to us or our co-worker.

We are more alert at work instead of too comfortable!!
Workplace Safety: Basics I

Preventing Accidents

- After we are going to handle anything which can go wrong, we need to eliminate any hazards.
- Contingency plan in mind should something pop-up.
- We should also know how to use our tools correctly: safely.
- Standard work practices should be followed, at all times to keep us out of the trouble.

---

Workplace Safety: Basics II

- Remember to wear proper personal protective equipment (PPE). Without it, we are increasing the potential danger we face.
- We must also know what we are made of. We must have a feel of our capability and our limitations.
- We should place ourselves to do jobs correctly and without incidents.
- We must constantly remind ourselves the importance of good safety habits.
Keeping our workplace in order - I

1. For maximum efficiency and safety your work environment must remain clean
   - That means disposing the unneeded material and trash.
   - This untidiness not only results in hazards but it can hide other problems as well

2. Each of us must take responsibility where safety is concerned
   - If you find a hazard report it as early as possible
   - But don’t tackle removing hazards unless you are having proper training, mark the hazard and get help

3-Feb-10

Keeping our workplace in order - II

3. Untidiness / Mess is the primary cause of accident
   - Remember to keep doorways specially emergency exits free from debris and furniture
   - The same goes for the staircases
   - Safe walkways must be identified within the factories and warehouses
   - Make sure you walk with in the lines

4. Do your best to keep from laying electrical cords and wires where people walk
   - Not looking for others can cause painful accidents
   - Find another pathway or if possible tape down cords
   - Stay away from quick and dirty approaches

3-Feb-10
Keeping our workplace in order - III

5. Poor lighting is a big problem. It makes difficult to spot hazards, so report burned-out lights immediately.

6. Avoid areas with wet and newly waxed floors. Mark the area with the warning signs. If you have to cross it, take your time.
   - Where slip hazards are likely safety shoes with no-slip soul should be worn.
   - Taking these steps to manage your work environment will make your workplace a safer workplace.

Keeping our workplace in order - IV

7. Smoke detectors, emergency lights are therefore for a reason, keep them in working order.
   - Pay attention to poster signs, if it says NO SMOKING means no-smoking !!
   - There may be flammable substances in the area

8. Flammable substances
   - Place smaller quantities of flammable substances in UL approved cans, store them in a materials cabinets marked with "Flammable Materials", "Keep fire away"
   - Secure compressed gas cylinders to walls in a cool ventilated area, store room should be fire resistant and free from corrosive fumes
   - Flammables are specially dangerous so, be careful when getting rid of flammable materials like cleaning fluids, oils and photo-copyer inks.
Keeping our workplace in order - V

9. We must know how to dispose the material we finished working with

- Remember some of them require special handling, flammables are specially dangerous
- Depending on substances special waste disposal companies may need to be called in
- Biological waste like medicines and bloody bandages must be placed in special bio-hazard disposable containers and bags. This prevents infection.
- Be careful with sharp objects like broken glasses and needles. These may be contaminated and can easily puncture the skin.
- Hazardous substances are called HAZARDOUS for a reason, they can hurt you if you use them incorrectly. Take the proper precautions and pay attention to what you are doing

3-Feb-10

Working at height - I

- Most of our work days are spent with our feet firmly on the ground. At ground level our tools and work surfaces are within even easy reach.
- When working up high remember to use some type of anti-fall device
  - Long reach with no support
  - Ladder with too steep angle, no proper rest at the ground, no proper shoes, slippery shoe bottom/sole, no stable load (carrying the load which itself shaking), one hand only free to climb, ladder too short and un-secured at the reach
Working at height - II

- Falling from heights
  - When you fall down, your head is not a ball which will bounce back, it crunches!!
  - Your body is very fragile to get damaged by falling from heights
  - Your legs are also fragile to break when you fall from heights

- 30,000 people die every year from working up high
  - 40% from roof-work
  - 27% from ladders
  - 12% from ill health and alcohol

Having A Positive Attitude - I

- To prevent accidents we need to look inside of ourselves and we must like what we see
  - Where safety is concerned, we should have positive attitude
  - Full of good safety habits
  - Overflowing with sound judgment
  - We must have self-control, never losing our self-control should things fail go our way.

- Its important not to get too comfortable with the job either

- When things become routine we sometimes walk blindly into the hazards we should have remembered
  - Don’t let the pressure to get the job done push you to directness, you can’t take chances where safety is concerned
Having A Positive Attitude - II

- Never to remove power tool guards, they protect us from high-speed dangers
- Keeping house up in your mind is the most important part of the accident prevention.
- Keep tabs on yourselves.
- Watch what you are doing and think positively
- To avoid accident maintain safety first attitude

Always be prepared for any possible Danger

3-Feb-10

Summary : --- “Preventing Accidents”---

- Examine Your Work Environment, Keep Things Clean
- Report Any Hazards You Find, Take Responsibility
- Know Your Tools, How To Use Them, And Maintain Them
- Practice Lock-Out / Tag-Out Techniques
- Handle & Store Materials Correctly
- Wear The Proper PPE (Personal Protective Equipment)
- Work Safely With Chemicals, Read The Material Direction Sheets And Act Accordingly
- Know Yourself, You Have A Positive Safety Attitude

3-Feb-10
Safe use of Crane & Lifting devices

1. Lifting devices such as slings or wire ropes shall be stored properly so that they are not corroded or damaged.
2. The lifting devices shall be inspected for cracks, damages or corrosion before each use.
3. The capacity of the lifting device used should be more than the load lifted.
4. Capacity of the lifting device / crane / tackle should be known to the user.
5. The crane hook should have locking facility to prevent slipping out of the lifting device.
6. The capacity of the crane used shall be more than the load lifted.
7. The required crane operations will be signalled to the operator only by experienced erection personnel.

Notes:
Course Objective

- Helping to save ones life with the knowledge of first aid, in the absence of doctor is heavenly enjoy.

- A First Aider, many a times, becomes more important than a doctor who is two miles away! To guide this course material is designed. It suggests the necessary scientific First Aid actions to be taken to save one’s life.

Course content

1. Basic Assessment of patient
2. C.P.R. Steps
3. Heart attack
4. Minor Injuries
5. Shock
6. Fracture
7. Spine Fracture
8. Burns
9. Snake - bite
Basic Assessment of Patient

- Basic Assessment of a serious case and immediate action required in case recovery is needed.

- Please check up first, if there is any sort of danger to the first aider or the patient or to the people around at the spot of accident in the form of poisonous gas, electric current, fire etc.

Response

- Call the patient by his name or pinch him and see the response.

- If no response the patient is unconscious.

- If the patient is unconscious then immediately
If patient is unconscious

A. Open the airway by titling his head to back and chin up.

B. Check breathing
C. Check blood circulation by checking neck pulse

D. If the patient is not breathing but the neck pulse is present give mouth to mouth breathing only.
E. Neck Pulse and Breathing both Absent Start **C.P.R.** Immediately.

- If both neck pulse and breathing are present and patient is not responding, continue with head to foot examination.

- Look for injuries, bleeding and fracture systematically. They may not look important in the beginning but may prove to be fatal in long term.

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2. **C.P.R.** (Cardio Pulmonary Resuscitation)

- Knowledge of C.P.R. is extremely useful in the cases of drowning, electric shock, poisonous gases, choking and heart attack.

- In cases wherever breathing and heart stops (no pulse present), do not waste time and Start C.P.R. immediately.
F. C.P.R. Steps - I

1. Check response of the patient, calling by his name or pinching. **Do not give C.P.R. to conscious patient.**

2. Open the airway – tilting the head to backside, chin upside.

3. Check breathing.

4. If no breathing, give two quick breaths.

5. Check neck pulse (blood circulation)
   If no pulse – start C.P.R. immediately.

---

F. C.P.R. Steps - II

6. If only one First Aider is available – 15 chest compressions – 2 mouth to mouth breaths. If Two First Aiders are available - 5 chest compressions – 1 mouth to mouth breath.

   Compress the chest in center.
   Adult (above 12 years) : 1.5” to 2”
   Child (from 2-12 years) : 1” to 1.5”
   Child (below 2 years) : 0.5” to 1”

7. Continue this till the patients breathing and neck pulse start on its own.
Bar-bending & Steel-fixing

First-Aid

F. C.P.R. - III

Correct Position of Hands for Chest Compression

C.P.R. with One Person

3-Feb-10

First-Aid

F. C.P.R. - III

C.P.R. with Two Persons

3-Feb-10
8. Once the breathing and neck pulse restarts, keep the patient in the Recovery position till he gains his consciousness.

3. Heart Attack
   It is very important that the heart attack patient reach Hospital in first two hours.
   
   The important symptoms of Heart Attack (3Ps)
   
   1. **Pain in chest**: in the center of the chest radiating to left arm, jaw or left shoulder. The pain is constricting, severe & last for more than 5 minutes.
      
      **Perspiration**: Sudden severe perspiration without cause.
      
      **Palpitation**: Without exertion.
   
   2. Suddenly omitting with gases like symptom but with restlessness and perspiration.
   
   3. Sudden Breathlessness.
4. Minor Injuries

Stop bleeding by following methods

1. Elevating injured part above the patients heart level.
2. Apply direct pressure by hand or bandage on the wound.
3. Try and use rubber gloves.
4. Ensure Prevention of Infection by washing the wound to clean the wound and give victim Tetanus preventing Injection at nearest Medical Centre

5. Shock

Causes:
Accidental injury, Bleeding, Burns, Heart attack, dehydration

Signs and symptoms:
Giddiness, Sudden perspiration, Nausea and omitting
Nails and face – pale white, Hand and feet cold.

Treatment:
1. Stop bleeding, stop pain in burns by pouring cold water.
2. Lower head end.
3. Keep the patient warm.
4. C.P.R. if needed.
5. Shift patient to the nearest hospital at the earliest.
6. Fractures - I

**Signs and symptoms:**
Pain, Swelling, Deformity & inability to move the limb.

**Treatment:**
1. Immobilise the fractured limb with splints like wooden stick, hardboard or umbrella.
2. Make a padding of cotton or hanky on the splints.
3. Do not tighten the splint too tight or loose.
4. Elevate the injured limb.
5. Use natural splints, like if a leg is fractured the other leg can be used as a natural splint.

6. Fractures - II
7. Spine Fractures - I

Falling from height can cause spine fracture.

Treatment:
1. Move the patient on the hard surface like table or bench.
2. Do not allow to sit, stand or walk.
3. Turn the patient by Log Rolling.
4. Shift the patient to hospital

---

7. Spine Fractures - II

**METHODS OF LOG ROLLING**

- Plenty of Support at the Spine
- Never Release Support at the Head
- Everyone Works Together with the Person at the Head
- Directing Movement

3-Feb-10
8. Burns - I

Treatment: 3 Bs and 3 Cs
B Stop burning by pouring cold water.
B Breathing maintained by artificial respiration or C.P.R. if needed.
B Body examination for injuries and fracture.
C Cool the burns by pouring cold water.
C Cover the burnt area with clean cloth.
C Carry the patient to hospital at the earliest.

8. Burns - II

Cool the Burns With Plenty of Water

3-Feb-10

First - Aid

FIPAL TREE VENTURES
9. Snake Bite

1. Advice patient not to panic and run.
2. Without delay tie a band or handkerchief tightly 2-4 inches above the tighten part. However you should feel pulse below the bitten part.
3. Lower the bitten part below the heart.
4. Wash the bitten part with clean water.
5. Examine the pulse and respiration.
6. Carry the patient to hospital for anti-snake venom injection.

MANAGEMENT OF SNAKEBITE

1. Follow DRABC
2. SEND for HELP
3. Rest & calm casualty
4. Apply pressure immobilisation bandage
5. Splint the damaged limb
6. Ensure casualty does not move

WARNING

DO NOT wash venom off the skin as retained venom will assist identification.
DO NOT cut bitten area.
DO NOT try to suck venom out of wound.
DO NOT use a constrictive bandage (i.e. Arterial tourniquet).
DO NOT try to catch the snake.
Skill List: Bar-bending

1. Identify the type of steel in the yard
2. Identify Damage of bars
3. Measure using measuring tape
4. Marking on bars
5. Spacing of bars
6. Bending of bars
   1. Sub Skill:- L Shape
   2. Sub Skill:- U Shape
   3. Sub Skill:- Chair
   4. Sub Skill:- Link
   5. Sub Skill:- Kink
   6. Sub Skill:- Stirrup
Skill List: Steel-fixing

1. Tying steel bars with Steel-Ties
2. Basic Drawing Reading
3. Placing Cover-blocks and Support for structures
4. Fixing steel-bars and Tying for Single Mat
5. Fixing steel-bars and Tying for Double mat
6. Fixing steel-bars and Tying for Retaining wall
Bar-bending & Steel-fixing

Daily Practice Notes: | Day 01

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Daily Practice Notes: Day 21

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Sign of Tradesman
TVPL/ZPN - 01  Sign of Instructor
# Weekly Written Test Answer Sheet: Week 01

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Sign of Tradesman

Sign of Instructor
## Weekly Written Test Answer Sheet: Week 02

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Sign of Instructor
# Weekly Written Test Answer Sheet: Week 03

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**Sign of Tradesman**

**Sign of Instructor**
Weekly Written Test Answer Sheet: Week 04

Name of the Candidate: _________________________________

Roll No: ___________________ Date: ______________

Trade: ______________________________ Subject: ______________________

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Sign of Tradesman ____________________

Sign of Instructor ____________________
Weekly Written Test Answer Sheet: Week 05

Name of the Candidate: ________________________________

Roll No: _____________ Date: ________________

Trade: ___________________________ Subject: ___________________________

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<th>Answer</th>
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Sign of Tradesman

Sign of Instructor
Weekly Skill Evaluation Record: Week 01

Name of the Candidate:
Roll No:  
Date:      
Trade:   
Subject:  

Skill Practice Assignments

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Sign of Tradesman  
Sign of Instructor
Weekly Skill Evaluation Record: Week 02

Name of the Candidate:

Roll No: Date:

Trade: Subject:

Skill Practice Assignments

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Remarks:

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Sign of Tradesman  

Sign of Instructor
Weekly Skill Evaluation Record: Week 03

Name of the Candidate:

Roll No: Date:

Trade: Subject:

Skill Practice Assignments

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Sign of Tradesman

Sign of Instructor
Weekly Skill Evaluation Record: Week 04

Name of the Candidate:
Roll No: Date:
Trade: Subject:

Skill Practice Assignments

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Remarks:
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Sign of Tradesman

Sign of Instructor
**Weekly Skill Evaluation Record: Week 05**

Name of the Candidate:  
Roll No:  
Trade:  
Date:  
Subject:  

### Skill Practice Assignments

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**Remarks:**

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**Sign of Tradesman**

**Sign of Instructor**
Weekly Learning Check list: Week 01

Name of the Candidate:

Roll No: __________________________ Date: __________________________

Trade: __________________________ Subject: __________________________

A. List three things that have changed during the training (your knowledge, skill or beliefs):

1.____________________________________________________________________

2.____________________________________________________________________

3.____________________________________________________________________

B. Using 20-25 words, describe the most important thing you have learned
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Remarks:
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Sign of Tradesman: __________________________ Sign of Instructor: __________________________
Weekly Learning Check list: Week 02

Name of the Candidate:

Roll No: Date:

Trade: Subject:

A. List three things that have changed during the training (your knowledge, skill or beliefs):

1.

2.

3.

B. Using 20-25 words, describe the most important thing you have learned

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Remarks:

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Sign of Tradesman                 Sign of Instructor
Weekly Learning Check list: Week 03

Name of the Candidate: 

Roll No: Date:

Trade: Subject:

A. List three things that have changed during the training (your knowledge, skill or beliefs):

1. 

2. 

3. 

B. Using 20-25 words, describe the most important thing you have learned

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Remarks:

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Sign of Tradesman

Sign of Instructor
Weekly Learning Check list: Week 04

Name of the Candidate:

Roll No: Date:

Trade: Subject:

A. List three things that have changed during the training (your knowledge, skill or beliefs):

1.

2.

3.

B. Using 20-25 words, describe the most important thing you have learned

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Remarks:

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Sign of Tradesman

Sign of Instructor
Weekly Learning Check list: Week 05

Name of the Candidate: 

Roll No: 

Date: 

Trade: 

Subject: 

A. List three things that have changed during the training (your knowledge, skill or beliefs):

1. 

2. 

3. 

B. Using 20-25 words, describe the most important thing you have learned

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Remarks:

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Sign of Tradesman ____________________________ 

Sign of Instructor ____________________________
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