SNS COLLEGE OF TECHNOLOGY

Coimbatore – 641 035

An Autonomous Institution

DEPARTMENT OF CIVIL ENGINEERING

23GET102-BASIC CIVIL AND MECHANICAL ENGINEERING

I YEAR / I SEMESTER

UNIT 1 : CIVIL ENGINEERING MATERIALS AND SURVEYING

Topic : **SURVEYING**

UNIT 1 :CIVIL ENGINEERING MATERIALS AND SURVEYING

1. *Introduction to Civil engineering*
2. *Scope of civil engineering*
3. *Building materials*
4. *Brick, stone, cement, concrete, properties-uses*
5. *Introduction to Surveying*
6. *Objectives – types – classification – principles of Surveying*
7. *Measurements of distances, angles*
8. *Concepts of Levelling*
9. *determination of areas*
10. *Illustrative examples.*

Measurement of Distances

Computational Method

Direct Method

Measurement of Distances

- *Distance obtained by Triangulation and Tachometry Surveying Process is called the Computational method.*
- *Distance are measured with the help of Chains, Tapes etc is called Direct methods*

Direct Methods

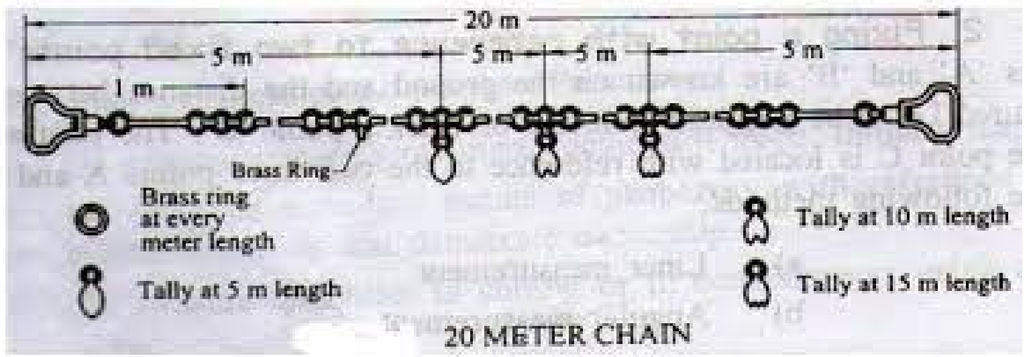
(a)Pacing

(b) Measurement with passometer

(c) Measurement with pedometer

(d) Measurement by odometer and speedometer

(e) Chaining

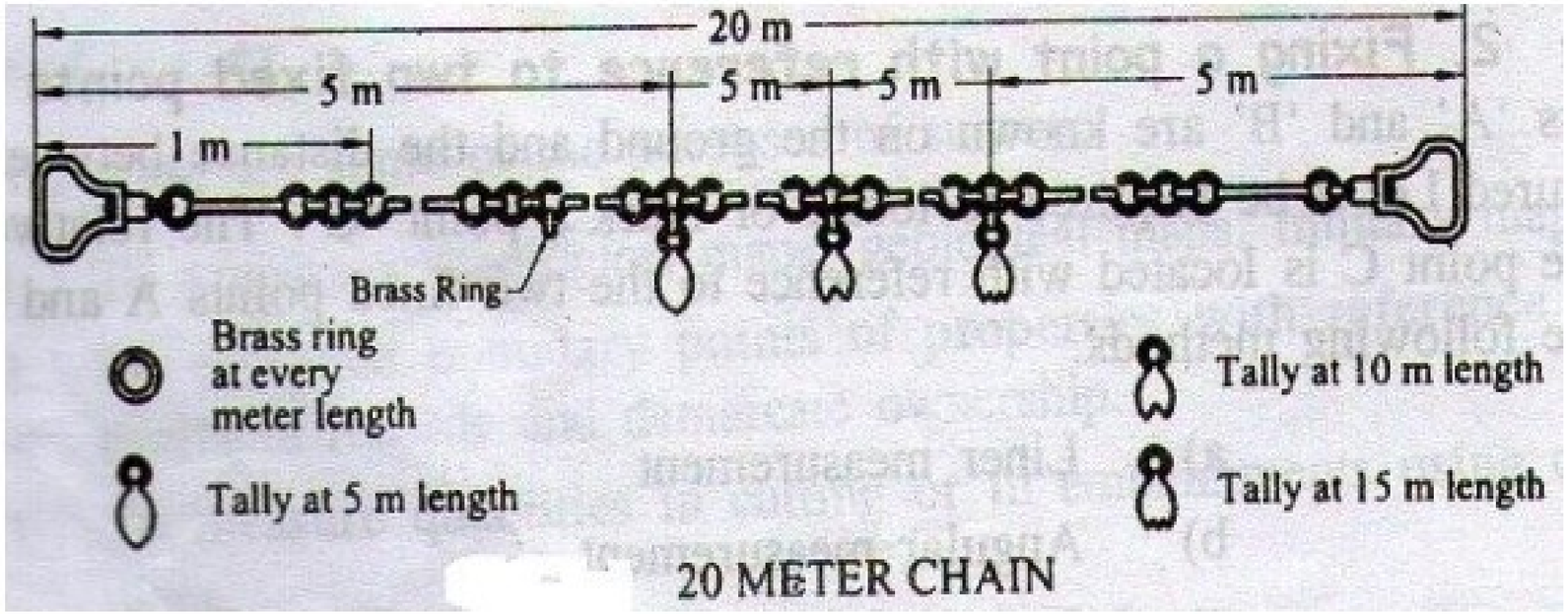


Chaining

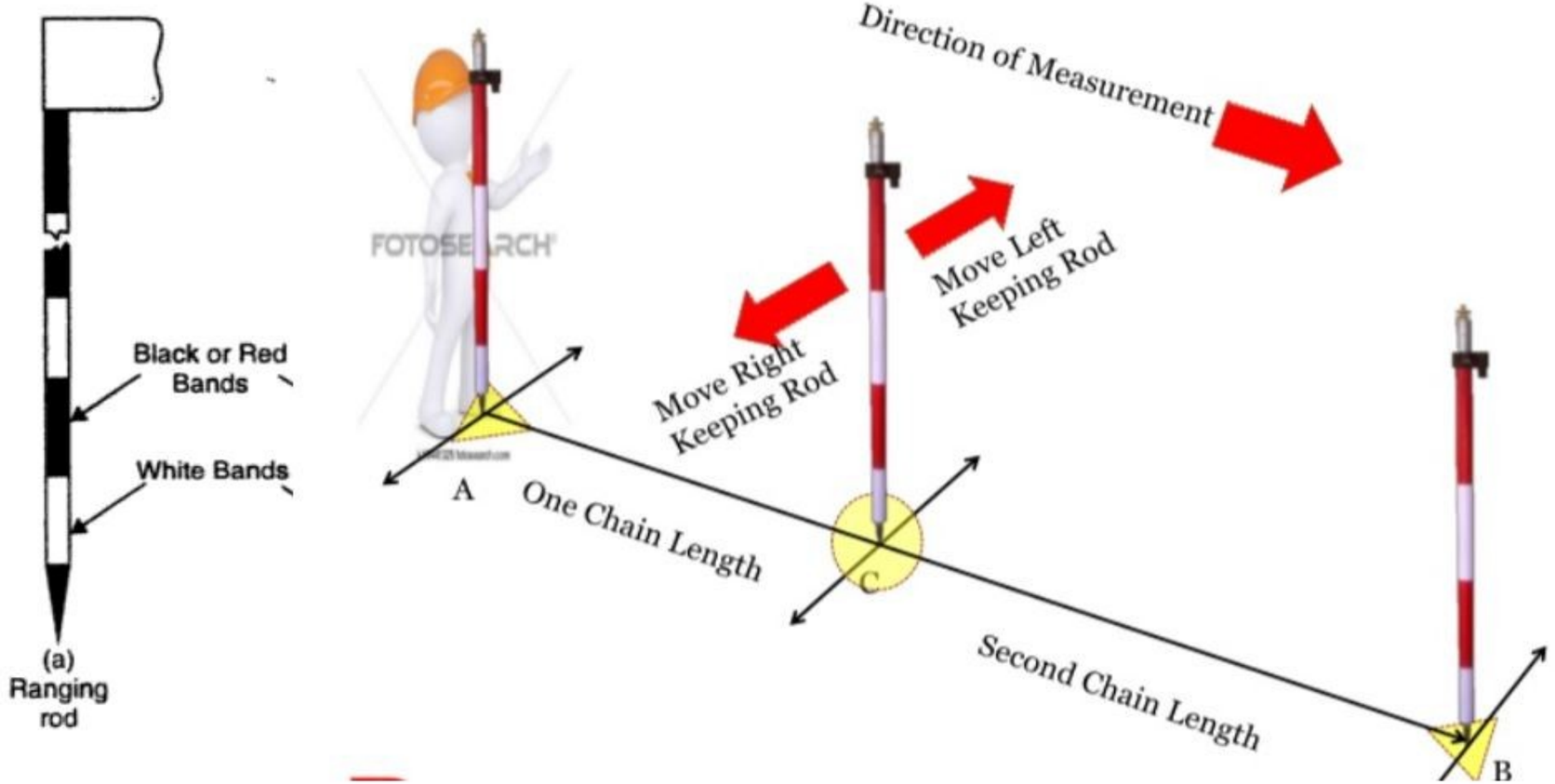
- *Chaining is a term which is used to denote measuring distance either with the help of a chain or a tape and is the most accurate method of making direct measurements.*
- *The chain is generally composed of 100 or 150 links.*
- *The length of the chain will be available in standard length of 20 or 30 m on the handle for easy identification.*
- *Tally is present in every 5 m.*

Instruments needed for Chain Surveying

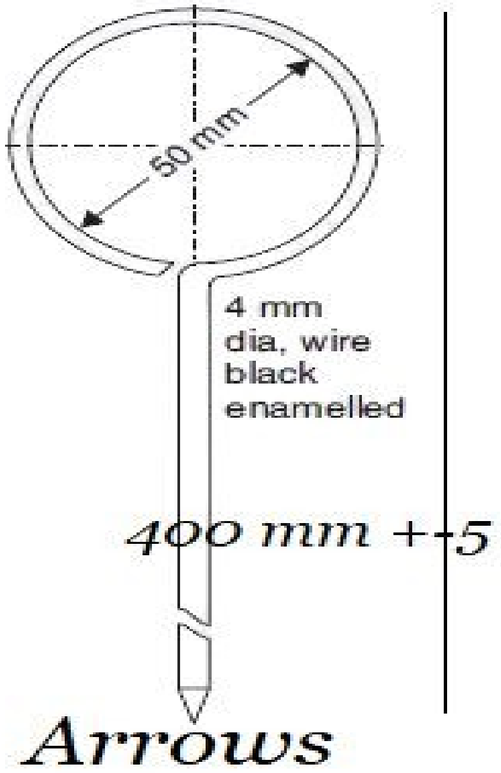
- *Metric Surveying Chain*
- *Arrows or Marking pins*
- *Pegs*
- *Ranging Rod*
- *Offset rods*
- *Cross Staffs*
- *Plumb Bob*


20 m
5 m
5 m
5 m
5 m
1 m
Brass Ring
Brass ring at every meter length
Tally at 5 m length
Tally at 10 m length
Tally at 15 m length
20 METER CHAIN

Offset Rod


Black or Red Bands
White Bands
(a) Ranging rod
Direction of Measurement
Move Right Keeping Rod
Move Left Keeping Rod
A
One Chain Length
C
Second Chain Length
B

Arrows and Pegs and Cross Staff



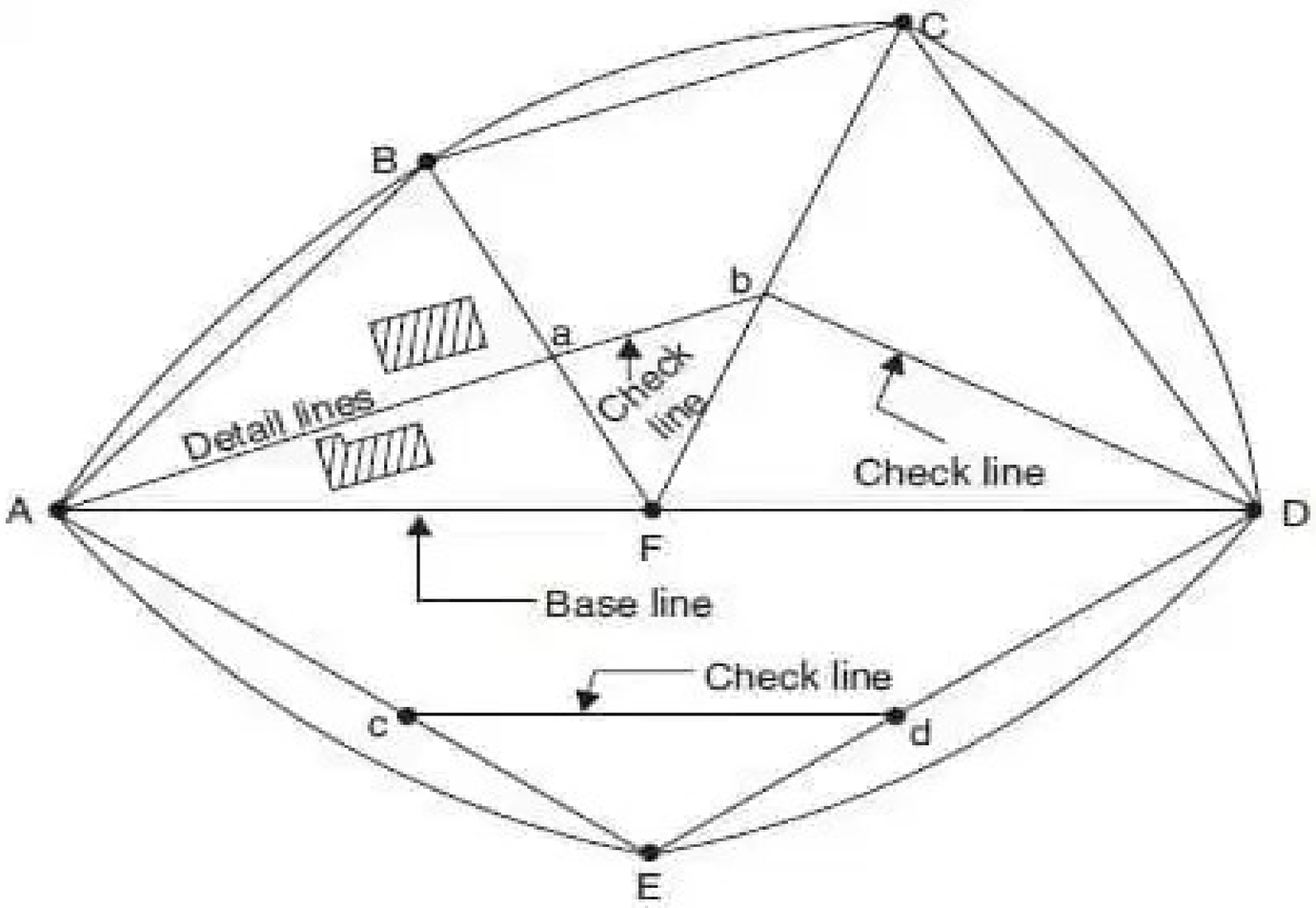
Suitability of chain Surveying

1. *It is suitable when the ground is fairly level and open with simple details.*
2. *When large scale plans are needed, this type is suitable.*
3. *It is suitable when the area to be surveyed is comparatively small in extent.*
4. *It is suitable for ordinary works as its length alters due to continued use.*
5. *Sagging of chain due to its heavy weight reduces the accuracy of measurements.*
6. *It can be read easily and repaired in the field itself.*
7. *It is suitable for rough usage.*

Unsuitability of chain Surveying

- *It is unsuitable for large areas crowded with many details.*
- *It is unsuitable for wooded areas and undulating areas.*

Technical terms in Chain Surveying



Chain Survey Stations

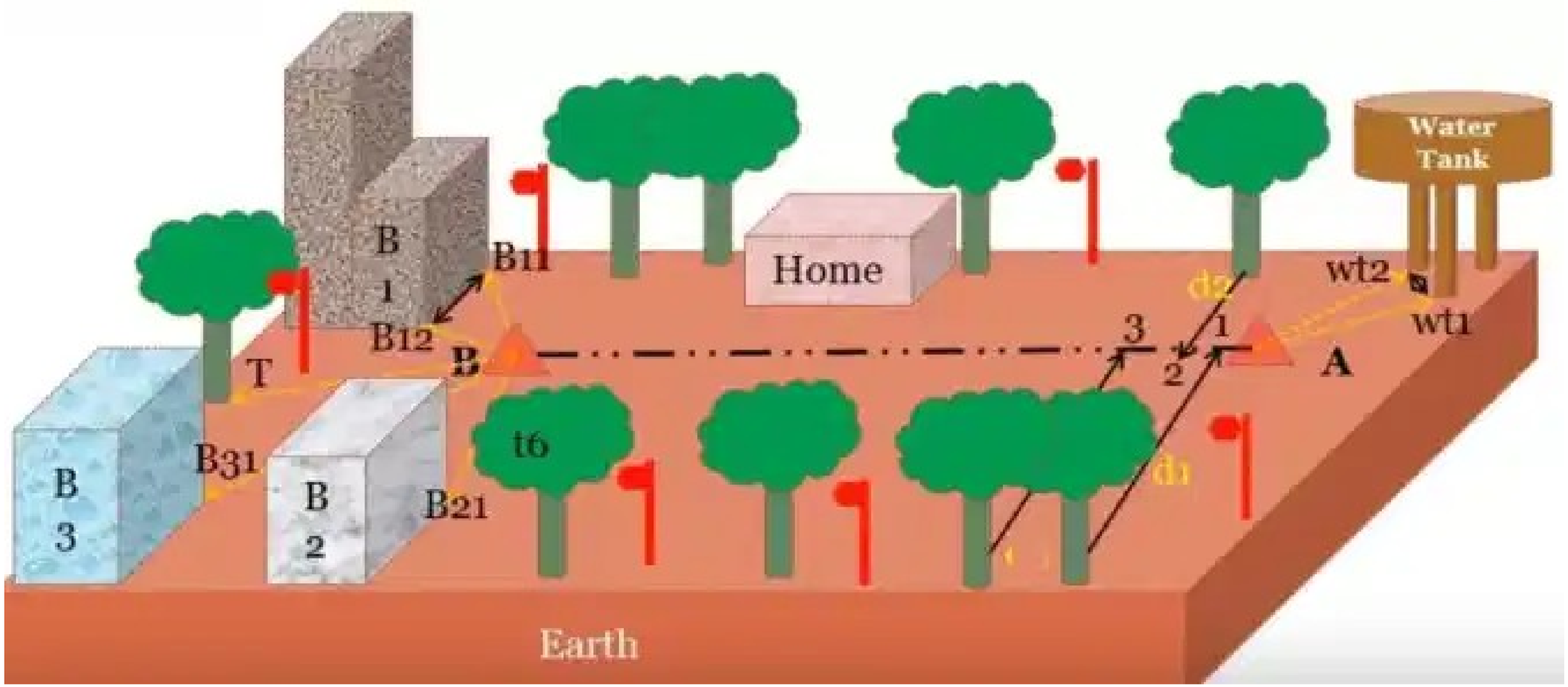
Survey stations are points of importance at the beginning and end of a chain line. There are two major types of stations in chain surveying:

Main stations

Main stations are the end of lines that determine the boundary of the surveying.

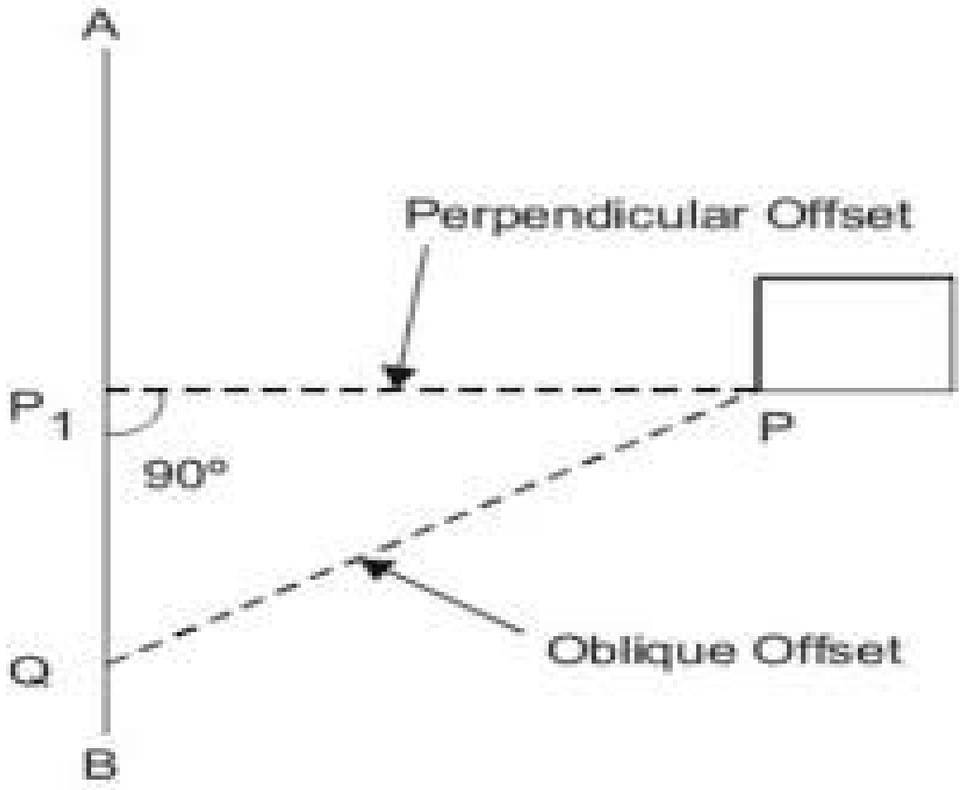
Tie (Subsidiary) Stations

Tie stations are points which are specified on the chain line (main survey lines) where it is required to identify interior details like buildings and fences.


B
1
B11
B12
Home
Water
Tank
wt2
wt1
d2
3
1
2
B
A
T
t6
B31
B
3
B
2
B21
d1
Earth

Offset

- *Perpendicular Offset*
- *Oblique Offset*



Assessment 2

1. *What are the Instruments in Chaining?*
2. *Length of the Chain?*
3. *Types of lines in Chaining?*
4. *Direct Methods in Surveying?*


Thank You!