**Noted: Attempt all the questions. Assume any missing data. Draw neat and labeled diagrams**

Q4:- Explain the following terms

 a:- swing offset

 b:- Oblique offset

 c:-Refernce sketch

Ans:**-Swing offset:-**

 In surveying, the perpendicular distance from a point to a survey line found by swinging a tape about the point as a centre and measuring the minimum distance from the point to the line.

Surveying. a short distance measured perpendicularly from a main survey line. Also called offset line. a line a short distance from and parallel to a main survey line.

Science and engineering

Offset (botany), a separable part of a plant that can develop into a new, independent plant. Offset (computer science), the distance to (displacement of) an element within a data object. Offset (gears), the perpendicular distance between the axes of hypoid or offset-facing gears,

Types of swing offset,

Classification of Offsets| Chain Surveying |Surveying. Article shared by : ADVERTISEMENTS: The offsets are classified according to direction and length, according to direction it is of two types i.e., perpendicular offsets and oblique offsets, according to length i.e., short offsets and long offsets.

B:**-Oblique offset:-**

The distance of a point from a main survey line measured at an angle to the latter that is not a right angle.

All offsets which are not at right angles to the main survey lines are known as oblique or tie line offsets such as CD and CE (Fig. 3.4.) When the object to be plotted is at a long distance apart from the chain line or it is an important one such as a corner of a building, oblique offsets are taken. These are also taken to check the accuracy of right angled offsets and to locate the position of stations in various surveys. Sometimes they help in reducing the number of main survey lines.

Any offset not perpendicular to the chain line is said to be oblique offset. Oblique offset taken when the objects are at the long distance from the chain line or when it is not possible to set up a right angle.

Oblique offsets are taken in the following manner.

Suppose AB is a chain line and p is the corner of a building. Two points ‘a’ and ‘b’ are taken on the chain line. The chain ages of ‘a’ and ‘b’ are noted. The distance ‘ap’ and ‘bp’ are measured and noted in the field book. Then ‘ap’ and ‘bp’ are the oblique offsets (Fig. 12). When the triangle ‘abp’ is plotted, the apex point ‘p’ will represent the position of the corner of the building.

**C:- Reference sketch:-**

That simply means if you are drawing a hand and you are having trouble, find something to help you besides your idea of what a hand looks like. So a picture of a hand would be a reference. Any kind of model of the object you are drawing.

Orthographic projections: are drawn as multi view drawings, which show flat representations of principal views of the subject. Oblique Projections: actually show the full size of one view. Axonometric Projections: are three-dimensional drawings, and are of three different varieties: Isometric, Diametric and Trimetric.

A sketch is a rapidly executed freehand drawing that is not usually intended as a finished work. A sketch ...

Q 3:-Describe two methods of setting out a right angle with tape at a point in the chain line

**Ans:-** in survey work, it is often necessary to set out right angles or perpendicular lines on the field. In the sections that follow, a few practical methods indicate how this can be done. These methods include:

- the 3-4-5 method: used to set out a right angle from a certain point on the base line;

- the rope method: used to set out a line perpendicular to the base line, starting from a point which is not on the base line;

- the single prismatic square and the double prismatic square: used to set out both right angles and perpendicular lines.

**Chain survey:**-chain surveying is considered to be the simplest method of surveying in which measurements are taken in the field and other supplementary works like plotting calculations are carried out in office. The measurements in chain surveying are linear- angular measurements are not considered Moreover, it provides fairly accurate result provided that the work is conducted carefully. Chain surveying is suitable for small areas with few details. Tools and equipment’s required include chain, tape, ranging rod, arrows and, sometimes, a cross staff. In this type of surveying, survey stations (main stations, tie or subsidiary stations) shall be specified carefully otherwise the outcome of the surveying process may not be accurate. In this type of surveying, survey stations (main stations, tie or subsidiary stations) shall be specified carefully otherwise the outcome of the surveying process may not be accurate.

Q 2: Find angle between the line AB and BC, if their respective bearings are 126 ͦ 11’’ and 58 ͦ 24’’.

Convert the bearings into WCB - Whole Circle Bearings and then subtract the smaller number from the larger one. Suppose AB is N20E and AC is S30W. The WCB of AB = 126•11and58 24, whereas the WCB of AC = 0+180+30 = 210 deg. So the angle BAC = 210–20 = 190 deg.

determine a back bearing. One technique is to do the math. Add or subtract 180° from you forward bearing to get your back bearing. You want the result to fall between 0° and 360°, so if the forward bearing is less than 180°, add 180° to it, and if it's greater than 180°, subtract 180. For example if the bearing is 45°, the back bearing is 180+45=225°. If the bearing is greater than 180°, then subtract the bearing from 360. For example if the bearing is 275° then the back bearing is 360-275=85°. If you are working in mils, then substitute 360° for 6400 mils, and 180° for 3200 mils...