

**ASSIGNMENT: 2 PLANE TABLE SURVEYING**

- Q.1** Define following terms for the vernier transit theodolite:  
(i) The vertical axis, (ii) Plunging, (iii) Swinging. Also, explain with sketch temporary adjustments of vernier transit theodolite.
- Q.2** What are the fundamental lines of a transit theodolite? What are the desired relations between them? Describe the procedure of permanent adjustment of (i) Horizontal cross hair, and (ii) Horizontal axis of transit theodolite.
- Q.3** Explain different methods of adjusting closing error in theodolite traverse
- Q.4** Draw sketch of Transit vernier theodolite and mention component parts and Enlist different axis of theodolite
- Q.5** Explain temporary adjustment of theodolite
- Q.6** Enlist different type of permanent adjustments needed in theodolite
- Q.7** Define latitude and departure. Differentiate between the consecutive and independent coordinates
- Q.8** Define, theodolite traversing and discuss loose needle and fast needle methods of theodolite traversing.
- Q.9** Describe the permanent adjustment of a theodolite to make the vertical axis truly vertical.
- Q.10** Define the following in reference to the theodolite:  
(1) Transiting (2) Axis of level tube (3) Telescope normal (4) Changing Face
- Q.11** Discuss Repetition method of horizontal angle measurement using theodolite.
- Q.12** What is meant by balancing a traverse? State the various rules used to do this
- Q.13** Explain the repetition method to measure horizontal angles and how readings are recorded? What are the advantages of this method?
- Q.14** Explain :- Methods of taking horizontal angles with vernier transit Theodolite.

**Q.15** How will you adjust closing error of traverse by graphical method & by Transit rule?

**Q.16** Discuss various methods of the theodolite traversing.

**Q.17** Define the following terms in relation to theodolite

(1) Face left observation (2) Face right observation (3) Transiting

(4) Line of collimation (5) Axis of level tube (6) Swinging

**Q.18** Following are the bearings and length of a Traverse ABCD. Find out closing error of traverse.

Line	AB	BC	CD	DA
Length(m)	105.8	142.5	188.8	188.9
Bearing	319 <sup>0</sup> 15'	51 <sup>0</sup> 30'	131 <sup>0</sup> 45'	256 <sup>0</sup> 45'

**Q.19** In a closed traverse ABCDEA, the lengths of the lines DE and EA could Not be measured due to an obstruction. Determine the lengths from the following data.

Line	Length (m)	Bearing
AB	480	99 <sup>0</sup> 00'
BC	625	31 <sup>0</sup> 05'
CD	470	301 <sup>0</sup> 20'
DE	?	235 <sup>0</sup> 00'
EA	?	153 <sup>0</sup> 25'

**Q.20** Following readings were taken for a closed traverse ABCDE, find out the missing Quantities

Line	Length (m)	Bearing
AB	194.1	85 <sup>0</sup> 30'
BC	201.2	15 <sup>0</sup> 00'

CD	165.4	285°30'
DE	172.6	185°30'
EA	?	?

**Q.21** The following data were obtained for a closed traverse ABCDEA which was run in the clockwise direction.

Line	Length (m)	Bearing	Included angle
AB	186	30°25'	∠A 118°20'
BC	164		∠B 82°10'
CD	303		∠C 137°00'
DE	162		∠D 73°44'
EA	240		∠E 128°36'

Compute corrected consecutive co-ordinates using Gale's traverse table. Use Bowditch's rule for balancing of the traverse.

**Q.22** The latitudes and departures of the lines of a closed traverse ABCD are given below. Calculate the area of the traverse by Coordinate method.

Line	Latitude (m)	Departure (m)
AB	-164.5	162.1
BC	217.8	59.8
CD	168.1	-105.6
DA	-221.4	-116.3

**Q.23** Prepare Gale's traverse table to adjust the closing error of the closed traverse ABCDA for the following data:

Line	Length (m)	Corrected W.C.B
AB	110	110°
BC	80	170°

CD	95	250 <sup>0</sup>
DA	160	350 <sup>0</sup>

**Q.24** In a closed traverse PQRSTP the bearings of the lines RT and TP could not be measured due to an obstruction. Determine the bearings from the following data.

Line	Length (m)	Bearing
PQ	488	99 <sup>0</sup>
QR	666	33 <sup>0</sup>
RS	477	300 <sup>0</sup>
ST	675	?
TP	355	?

