BHARATI VIDYAPEETH INSTITUTE OF TECHNOLOGY
Question Bank (K-Scheme)

Name of subject: Advanced Surveying **Unit Test: I**
Subject code: 313321 **Course: CE**
Semester: III

CHAPTER 1 (Tacheometric Surveying)

(2 Marks)

a. State any two objectives of tacheometry.

b. State the principle of tacheometry.

c. Explain the functions of anallactic lens.

d. State the situations where Tacheometry is used.

e. What are the essential components of Tacheometer.

f. State limitations of Tacheometry.

(4 Marks)

a. State essential characteristics of tacheometer.

b. Differentiate between theodolite & Tacheometer.

c. A tacheometer fitted with anallatic lens was set up at station P & the following readings were obtained on vertically held staff.

Inst. Stn	Staff Stn.	Vertical angle	Staff Reading
P	BM	$-10^0 42'$	0.220, 1.000, 1.780
P	Q	$+8^0 36'$	0.415, 1.240, 2.065

The RL of BM is 200 m, the multiplying constant of tacheometer is 100 and additive constant is 0. Find the horizontal distance PQ & RL of Q.

d. The following are the observations made by tachometer with anallatic lens ,the multiplying constant being 100. the staff was held vertical.

Instrument Station	H.I	Staff Station	Vertical Angle	Hair Readings
O	1.3	BM	-6°10'	0.8,1.7,2.0
O	1.3	A	7°5'	0.72,1.5,1.9

RL of BM=150m.
Find RL of A and horizontal distance OA.

e. The following are the observations made by tachometer with anallatic lens ,the multiplying constant being 100. the staff was held vertical.

Instrument Station	Staff Station	Vertical Angle	Hair Readings
A	BM	-6°10'	0.9,1.2,2.2
A	B	-3°15'	1.2,1.3,1.7

RL of BM=250m.
Find RL of B and horizontal distance AB.

CHAPTER 2 (Curve Setting)

(2 Marks)

a. Define horizontal curve and vertical curves.
b. Enlist the types of curves used in roads & railway alignment.
c. Define Curve and state necessity of curve
d. Define Reverse curve and draw its diagram.
e. Define Transition curve and draw its diagram.
f. Give the relation between degree of curve and radius.
g. Enlist different methods of setting of simple curves.

(4 Marks)

a. Explain with sketch notations of simple circular curve.

b. Explain offset from long chord methods of curve setting.

c. Draw a neat sketch of circular curve & show the following element: (i) Tangent length (ii) Deflection angle (iii) Apex distance (iv) Length of long chord

d. Calculate the ordinates at 25 m interval to set a circular curve having long chord of 300 m & versed sine of 10 m.

e. Two straights AB and BC intersect at a chainage of 850m, the deflection angle is 35°. Calculate all the data necessary for setting out a simple curve with radius 350 m by the rankines method of deflection angles.Take peg interval as 30m.Calculate the first three deflection angles only.

f. Two straights intersect at a chainage of 1350m,the deflection angle is 30°.Calculate the chainages of tangent points.Radius of curve is 250m. g. Two straights AB and BC intersect at a chainage of 1700m,the intersecting angle is 145°.Calculate the radius and chainages of tangent points of a circular curve.Degree of curve is D=5°

g. Calculate the ordinates of 25m interval to set a circular curve having long chord of 300m and versed sine of 10m.

h. Two tangents intersect at chainage 350m the deflection angle being 35 degree. Calculate all

the data necessary for setting out curve with a radius of 200m by method of Deflection angles.

CHAPTER 3 (Advanced Surveying Equipment's)

(2 Marks)

a. State uses of Total Station.
b. State any two features of digital theodolite.
c. State Component parts of EDM.
d. State Component parts of Micro Optic theodolite (Wild T-1).
e. State component parts of Digital Theodolite.
f. State uses of EDM.

(4 Marks)
a. State the procedure of building Layout using total station.

b. State the features of electronic theodolite.

c. State the uses of total station.

d. State the principle of EDM with sketch.

e. State 4 component parts of digital theodolite & state their purpose.

f. Explain the procedure of measurement of horizontal angle using Digital theodolite.

g. Explain procedure of measuring distance using EDM.

h. Write a note on Total Station and state its component parts.

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