1

1T00634 - S.E.(Civil Engineering)(SEM-IV)(Choice Base Credit Grading System) (R-20-21) (C Scheme) / 40423 - Surveying
Correction in Q.P.Code: 10085587
Please read as
Q 3A: Bearing of AB read as **"Bearing of DA"**
Q.5 B: Write a note on Total Station
Read as
Write a note on EDM and Digital theodolite

2025-05-19 15:03:31 (sagardadmin)

(CIVIL) sem IV R20 C'Scheme 19-05-2025

Time: (3 Hours) [Total Marks: 80]

Note: i. Q. No. 1 is **compulsory**
ii. Attempt **any 3** out of remaining 5

1. **Solve any four** **(20 M)**

A. Explain the Principle of Surveying.
B. Enlist types of levelling and explain any two.
C. What are fundamental lines of theodolite? Explain the relation between them.
D. Define Tacheometry. Explain its Principle.
E. Explain types of horizontal curves with neat sketch.
F. Compare Trapezoidal and Prismoidal formula for estimating volume.

2. **A.** Following readings were taken using an Auto Level. The instrument was shifted after 4th and 7th reading. Find the RL of all staff station if the R.L of first station is 100 meters. Apply checks. If the readings were taken at distance of 20 meters, find the gradient of line joining first and last station. **(08 M)**

1.245, 2.580, 1.760, 4.595, 3.725, 1.535, 2.855, 1.680, 2.625, 1.110

B. Enlist the methods of plane table survey and explain any 2. **(07 M)**

C. Write detailed note on Total Station. **(05 M)**

3. **A.** An incomplete traverse table is obtained as follows. Calculate the length of line DA and Bearing of AB **(08 M)**

Line	Length (m)	Bearing
AB	75.50	30^0 24'
BC	180. 50	$110^0$36'
CD	60.25	$210^0$30'
DA	?	?

B. The Following offsets were taken from a chain line to a Hedge. **(08 M)**

Distance in m	0	20	40	60	80	120	160	200	240
Offsets in m	24	20	16	12	8	10	14	16	20

Calculate the area enclosed by chain line, the hedge and the end offsets by Trapezoidal Rule.

C. Compare Whole Circle Bearing and Reduced Bearing. Convert the following WCB into RB: **(04 M)**

i. 234^0 30' ii. 270^0 iii. 48^0 45' iv. 319^0 15'

Q.P. code

Prog. code
1T00634

4. A. The following observations were taken with a Tacheometer fitted with an analytic lens, Station P is between A and B. The constant of the Tacheometer is 100. **(08 M)**

Inst. Station	Height of Instrument	Staff Station	Vertical angle	Hair Readings (m)			Remark
				L	M	U	
P	1.255	A	-4°20'	1.325	1.825	2.325	RL of A 255.750
P	1.255	B	+6°30'	0.850	1.600	2.350	

Calculate the RL of B and gradient of line joining A and B.

B. Define contour. Explain characteristics of contour line with neat sketch. **(08 M)**

C. Discuss on types of vertical curves. Explain the elements of vertical curve with neat sketch. **(04 M)**

5. A. Find the local attraction and give corrected bearings. Also, if there is a declination of 2° 20' W, give the true bearings. **(08 M)**

Line	Fore Bearing	Back Bearing
AB	80° 45'	260° 0'
BC	130° 30'	311° 35'
CD	240° 15'	60° 15'
DA	290° 30'	110° 10'

B. Write a note on Total Station. **(08 M)**

C. Define the following: **(04 M)**

i. Meridian
ii. Declination
iii. Fly levelling
iv. Bench mark

6. A. Prepare a table for setting out a simple circular curve using Rankine's method for the following data: **(08 M)**
Radius of curve = 250 meters.
Intersection angle = 150°
Chainage of point of intersection = 1250 meters.
Peg interval = 20 meters
Least count of Vernier = 20"

B. Explain the Procedure of carrying out Tacheometric contouring on field. **(08 M)**

C. Explain Gales Travers Table **(04 M)**
