

TEST

Geomatics Engineering

Time: 60 Minutes

- What is the principle of surveying?
 - Working from part to whole
 - Working from whole to part
 - Working from higher to lower
 - Working from lower to higher
- An offset is measured with an accuracy of 1 in 40. If the scale of plotting is 1 cm = 30 m, the limiting length of offset, so that the displacement of point on paper from both sources of error may not exceed 0.025 mm, is _____.
 - 21.3 m
 - 21.4 m
 - 21.2 m
 - 21.8 m
- The whole circle bearing of $S31^{\circ}36' E$ is _____.
 - $138^{\circ}24'$
 - $158^{\circ}24'$
 - $128^{\circ}24'$
 - $148^{\circ}24'$
- If the image formed by the objective lens is not in the same plane with cross hairs, then it is known as
 - focusing of eye piece.
 - focusing of objective.
 - parallax.
 - aberration.
- The automatic check for leveling in case of height of instrument method is
 - $\Sigma BS - \Sigma FS = \text{Last RL} - \text{First RL}$.
 - $\Sigma BS - \Sigma FS = \Sigma \text{Rise} - \Sigma \text{fall}$.
 - $\Sigma \text{Rise} - \Sigma \text{fall} = \text{last RL} - \text{First RL}$.
 - None of these
- A line lying throughout the surface of the ground and preserving a constant inclination to the horizontal is
 - contour gradient.
 - horizontal equivalent.
 - contour interval.
 - vertical control.
- Surveyor's chain consists of 100 links along a length of
 - 100 ft long
 - 33 ft long
 - 66 ft long
 - 50 ft long
- Correction for temperature in a chain when the temperature at field is more than the standard temperature is _____.
 - additive
 - negative
 - constant
 - None of these
- In surveyor's compass the graduation are in
 - whole circle bearing.
 - quadrantal bearing.
 - both whole circle bearing and quadrantal bearing.
 - None of these
- Small scale representation of map is known as
 - scale.
 - plan.
 - grid.
 - survey map.
- The sag correction for a 30 m steel tape under a pull of 200 N in four equal spans of 8 m each: (The weight of one cubic cm of steel = 0.078 N and area of cross-section of tape = 0.08 sqm.)
 - 3.9 N
 - 4.2 N
 - 4.99 N
 - 4.6 N

12.

Co-ordinates

Point	N	E
A	0	0
B	3014	256
C	1764	1398
D	-	-

A straight tunnel is to be run between two points *A* and *B* whose co-ordinates are as given above.

The length and bearing of *CD* if *D* is the mid-point of *AB*, are _____.

- $74^{\circ}38'$, 1380.2 m
- $75^{\circ}39'$, 1278.4 m
- $78^{\circ}34'$, 1295.7 m
- $76^{\circ}32'$, 1287.6 m

- In leveling between two points *A* and *B* on opposite banks of a river, the staff readings at *A* and *B* were 1.295 and 2.960 m respectively. The level was then removed and set up near *B* and the readings on *A* and *B* were 0.56 and 2.42. The true difference of levels between *A* and *B* is _____.
 - 3.486 m
 - 3.525 m
 - 3.538 m
 - 3.624 m

- The perpendicular offsets at 20 m intervals from survey line to an irregular boundary lines are 3.25, 5.6, 4.2, 6.65, 8.75, 6.2, 3.25, 4.2, 5.65. The area enclosed between survey line by the application of trapezoidal rule is _____.
 - 820 m²
 - 833 m²
 - 860 m²
 - 866 m²

- An observation with a theodolite given staff readings of 1.052 and 2.502 for angles of elevation gave 8% and 6% respectively. The vertical angle was 5.25%. The horizontal distance of staff station if the instrument elevation is 942.5 m, is _____.
 - 48 m
 - 52 m
 - 56 m
 - 50 m

- The following are bearings in closed traverse:

Line	FB	BB
AB	$80^{\circ}10'$	$259^{\circ}0'$
BC	$120^{\circ}20'$	$301^{\circ}50'$
CD	$170^{\circ}50'$	$350^{\circ}50'$
DE	$230^{\circ}10'$	$49^{\circ}30'$
EA	$310^{\circ}20'$	$130^{\circ}15'$

The interior angles between the bearings are _____.

- (A) $50^\circ, 65.3^\circ, 230.5^\circ, 100^\circ, 123^\circ$
 (B) $50.5^\circ, 138.40^\circ, 131^\circ, 120.40^\circ, 99.10^\circ$
 (C) $53^\circ, 48.4^\circ, 123.2^\circ, 121^\circ, 100.10^\circ$
 (D) $58^\circ, 62.5^\circ, 73^\circ, 148^\circ, 133^\circ$

17. In order to find the difference in elevation between two points P and Q , a level was set upon line PQ ; 40 metres from P and 1.280 m from Q . The readings obtained on shaft kept at P and Q were 0.525 m and 4.92 m. respectively. The true difference in elevation between P and Q is _____.

- (A) 3.87 m (B) 4.82 m
 (C) 4.39 m (D) 4.31 m

18. Match the following:

List I	List II
1. Vertical axis	i. Axis about which telescope rotates in vertical plane
2. Turnion axis	ii. Line passing through intersection of horizontal and vertical cross hairs and optical centre
3. Line collination	iii. Axis about which instrument rotates in horizontal plane
4. Axis of level tube	iv. Line tangential to longitudinal curve of level tube at its centre

Codes:

- (A) 1 – ii, 2 – iii, 3 – i, 4 – iv
 (B) 1 – iv, 2 – i, 3 – iii, 4 – ii
 (C) 1 – iii, 2 – i, 3 – ii, 4 – iv
 (D) 1 – iii, 2 – iv, 3 – ii, 4 – i

19. A surveyor measured the distance between two points on plan drawn to a scale of 1 cm = 30 m and the result was 500 m. Later it was discovered that 1 cm = 10 m scale was used. The true distance between the points would be _____.

- (A) 168.3 m (B) 165.6 m
 (C) 162.3 m (D) 166.6 m

20. I. The diurnal variation is the departure of the destination from its mean value during a period of 24 hours.
 II. The variation which has a yearly period is known as annual variation.
 (A) I is true
 (B) II is true
 (C) Both I and II are true
 (D) Both I and II are false

21. Match the following

List I (Purpose of Survey)	List II (Scale)
1. Building site	i. 1 cm = 50 mts 200 m
2. Location survey	ii. 1 cm = 10 m or less
3. Town planning	iii. 1 cm = 50 m to 100 m

Codes:

- (A) 1 – ii, 2 – iii, 3 – i
 (B) 1 – iii, 2 – ii, 3 – i
 (C) 1 – ii, 2 – iii, 3 – i
 (D) 1 – i, 2 – ii, 3 – iii

22. Two straight lines intersect at an angle of 50° . The radius of curve joining the two straight lines is 400 m. The length of long chord and mid ordinates in metres is. _____.

- (A) 337.8 m, 36.8 m (B) 340.6 m, 38.3 m
 (C) 338.09 m, 37.47 m (D) 360.7 m, 35.6 m

23. During the leveling work along a falling gradient using a dumpy level and staff of 3 m length, the following successive readings are taken:

1.623, 2.789, 0.260, 1.520

What will be the correct order of booking these four readings in level book?

- (A) BS, FS, BS, FS (B) BS, IS, FS, FS
 (C) BS, IS, IS, FS (D) BS, IS, BS, FS

24. The bench mark with reduced level (RL) = 156.305 m has been established at the floor of a room. It is required to find the RL of the underside of roof. Back sight (BS) is 1.8 m whereas the Fore sight (FS) is 0.675, The RL will be _____.

- (A) 152.3 m (B) 159.8 m
 (C) 158.7 m (D) 153.3 m

25. **Assertion (A):** Radiation method of plane table survey is employed for locating the details.

Reason (R): Radiation method is suitable when distances are small.

- (A) A and R are true and R is the correct explanation of A.
 (B) A and R are true and R is not the correct explanation of A.
 (C) A is true and R is false.
 (D) A is false and R is true.

ANSWER KEYS

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|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1. B | 2. C | 3. D | 4. C | 5. A | 6. A | 7. C | 8. A | 9. B | 10. B |
| 11. C | 12. C | 13. B | 14. D | 15. D | 16. B | 17. A | 18. C | 19. D | 20. C |
| 21. A | 22. C | 23. A | 24. C | 25. B | | | | | |