BRAINWARE UNIVERSITY

Term End Examination 2023
Programme – B.Tech.(CE)]-2021
Course Name – Surveying
Course Code - PCC-CE403
(Semester IV)

Full Marks : 60   **Time : 2:30 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A
(Multiple Choice Type Question)   1 x 15=15

1. *Choose the correct alternative from the following :*

(i) Select the correct answer for the blank : Tilt of the staff in stadia tacheometry increases the intercept if it is _____ .

   a) Away from the telescope pointing down hill   b) Towards the telescope pointing up-hill
   c) Away from the telescope pointing up-hill   d) None of these

(ii) Select the correct answer for the blank : For a tachometer the additive and multiplying constants are respectively _____ .

   a) 0 and 100   b) 100 and 0
   c) 0 and 0   d) 100 and 100

(iii) Select the correct answer for the blank : The constant vertical distance between two adjacent contours, is called_____ .

   a) Horizontal interval   b) Horizontal equivalent
   c) Vertical equivalent   d) Contour interval

(iv) Choose when the bubble of the level tube of a level, remains central

   a) Line of sight is horizontal   b) Axis of the telescope is horizontal
   c) Line of collimation is horizontal   d) Geometrical axis of the telescope is horizontal

(v) Select the correct answer for the blank : Reduced bearing of a line is an angle between

   _____

   a) North line and given line measured clockwise   b) North line and given line measured anticlockwise
   c) East or west and the given line   d) Given line and the part of the meridian whether N end or S end, lying adjacent to it

(vi) Choose the correct answer for the blank : The resection by two point problem as compared to three point problem _____ .

   a) Gives more accurate problem   b) Takes less time
   c) Requires more labour   d) None of the above

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(vii) Select the correct answer for the blank : To avoid large centering error with very short legs, observations are generally made _____ .

a) To chain pins

b) By using optical system for centering the theodolite

c) To a target fixed on theodolite tripod on which theodolite may be fitted easily

d) All the above

(viii) Select the correct answer for the blank : Different grades are joined together by a _____ .

a) Compound curve

b) Transition curve

c) Reverse curve

d) Vertical curve

(ix) Choose which of the following methods of theodolite traversing is suitable for locating the details which are far away from transit stations.

a) Measuring angle and distance from one transit station

b) Measuring angles to the point from at least two stations

c) Measuring angle at one station and distance from other

d) Measuring distance from two points on traverse line

(x) Select the correct answer for the blank : The line of collimation method of reduction of levels, does not provide a check on _____ .

a) Intermediate sights

b) Fore sights

c) Back sights

d) Reduced levels

(xi) Select the correct answer for the blank : Imaginary line passing through points having equal magnetic declination is termed as _____ .

a) Isogon

b) Agonic line

c) Isoclinic line

d) None of these

(xii) Choose which one of the following statements is correct.

a) When the axes of rotation of the graduated circle and the verniers are not coincident, the instrument possesses eccentricity

b) The mean of the readings of the two verniers gives correct reading free from the eccentricity

c) One Vernier may be used if the readings of two verniers differ by a constant

d) All the above

(xiii) Select the correct answer for the blank :Transit rule of adjusting the consecutive coordinates of a traverse is used where _____ .

a) Linear and angular measurements of the traverse are of equal accuracy

b) Angular measurements are more accurate than linear measurements

c) Linear measurements are more accurate than angular measurements

d) All of the above

(xiv) Select the correct answer for the blank : The chord of a curve less than peg interval, is known as _____

a) Small chord

b) Sub-chord

c) Normal chord

d) Short chord

(xv) Select the correct answer for the blank : For the construction of highway (or railway) _____ .

a) Longitudinal sections are required

b) Cross sections are required

c) Both longitudinal and cross sections are required

d) None of these

Group-B
(Short Answer Type Questions)

3 x 5=15

2. Describe the instruments used for measurement of lengths of survey lines. (3)
3. Describe Intersection method of plane table survey. (3)
4. Explain why a type of theodolite is called a transit theodolite. (3)
5. Explain Check Line and Offset. (3)

6. The magnetic bearing of a line is S 28°30' E. Calculate the true bearing if the magnetic declinations are 5°38' East and 5° 38' West. (3)

OR

Distinguish between differential levelling and reciprocal levelling. (3)

Group-C
(Long Answer Type Questions)

5 x 6=30

7. State the Fundamental lines of Dumpy Level and give their relationship. (5)
8. Define benchmark and reduced level and explain different kinds of bench marks. (5)
9. Explain the terms: Magnetic meridian and Bearing. (5)
10. A survey line PQ intersects a tall building. To continue the line PQ, QR of length 120 m was set out at right angles to PQ. From R two lines, RS and RT, making angles 45 degree and 60 degree with RQ, were ranged. Solve the lengths of RS and RT in order that the stations 'S' and 'T' may be in PQ produced, and length of `QS' past the building. (5)
11. Evaluate the whole circle bearing into reduced bearing(degree): 50, 176, 210, 232, 150, 76, 310,242. (5)
12. Differentiate Between Plane and Geodetic Survey. (5)

OR

Classify any four instrumental errors and four personnel errors in prismatic compass survey. (5)

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