



CIVIL ENGINEERING

Surveying MCQ



Ans – d

19. If the radius of circular curve is five times the length of the transition curve, then the spiral angles given by

- A. $1/5$ radian
- B. $1/10$ radian
- C. $1/20$ radian
- D. $1/40$ radian

Ans – b

20. For a circumpolar star, declination must be

- A. equal to colatitude
- B. more than colatitude
- C. less than colatitude
- D. any of the above

- A. equal to colatitude
- B. more than colatitude
- C. less than colatitude
- D. any of the above

Ans – b

21. Agonic line is the line joining points having

- A. zero declination
- B. minimum declination
- C. maximum declination
- D. same declination

Ans – a

22. The maximum value of centrifugal ratio on roads and railways respectively are taken as

- A. 1/4 and 1/6
- B. 1/6 and 1/8
- C. 1/4 and 1/8

D. suitable for hilly terrains

Ans – c

52. In direct method of contouring, the process of locating or identifying points lying on a contour is called

- A. ranging
- B. centring
- C. horizontal control
- D. vertical control

Ans – d

53. Which of the following methods of contouring is most suitable for a hilly terrain?

- A. direct method
- B. square method

53. Which of the following methods of contouring is most suitable for a hilly terrain?

- A. direct method
- B. square method
- C. cross – section method
- D. tacheometric method

Ans – d

54. The suitable contour interval for a map with scale 1:10000 is

- A. 2 m
- B. 5 m
- C. 10 m
- D. 20 m

Answer: Option A

55. An imaginary line lying throughout on the surface of the earth and preserving a constant inclination to the horizontal, is called

- A. contour line

- A. the top of summit
- B. the bottom of a valley
- C. one side of the slope
- D. anywhere

Ans – c

60. Sensitiveness of a level tube is designated by

- A. radius of level tube
- B. length of level tube
- C. length of bubble of level tube
- D. none of the above

Ans – a

61. If the horizontal distance between the staff point and the point of observation is d , then the error due to curvature of earth is proportional to

Ans - a

61. If the horizontal distance between the staff point and the point of observation is d , then the error due to curvature of earth is proportional to

A. d

B. $1/d$

C. d^2

D. $1/d^2$

Ans - c

62. The distance to the visible horizon from a height of 36 m above mean sea level is given by

A. $\sqrt{\frac{36}{0.6735}}$ km

B. $36\sqrt{0.06735}$ km

78. Theory of probability is applied to

- A. accidental errors only
- B. cumulative errors only
- C. both accidental and cumulative errors
- D. none of the above

Ans – a

79. Which of the following scales is largest one?

- A. 1 cm = 50 m
- B. 1 : 42000
- C. R.F. = $1/300000$
- D. 1 cm = 50 km

Ans – a

D. 1 cm = 50 km

Ans – a

80. The main difference between an optical square and a prism square is

- A. difference in principal of working
- B. that optical square is more accurate than prism square
- C. that no adjustment is required in a prism square since the angle between the reflecting surfaces cannot be changed
- D. all of the above

Ans – C

81. Agate cap is fitted with a

- A. cross staff
- B. level
- C. chain
- D. prismatic compass

Ans – d

transition

A. $l \propto r$

B. $l \propto r^2$

C. $l \propto 1/r$

D. $l \propto 1/r^2$

Ans - c

16. Total angle of deflection of a transition curve is

A. spiral angle

B. spiral angle/2

C. spiral angle/3

D. spiral angle/4

Ans - c

- D. spiral angle/2
- C. spiral angle/3
- D. spiral angle/4

Ans – c

17. The shape of the vertical curve generally provided is

- A. circular
- B. parabolic
- C. spiral
- D. elliptical

Ans – b

18. Perpendicular offset from the junction of transition curve and circular curve to the tangent is equal to

- A. shift
- B. two times the shift
- C. three times the shift
- D. four times the shift

- B. inversely proportional to its horizontal distance from the point of tangency
- C. directly proportional to the square of its horizontal distance from the point of tangency
- D. inversely proportional to the square of its horizontal distance from the point of tangency

Ans - c

27. If L is the length of transition curve and R is the radius of circular curve, then the shift of the curve is directly proportional to

- A. R and $1/L^2$
- B. $1/R$ and L^2
- C. $1/R^2$ and L
- D. R^2 and $1/L$

C. $1/R^2$ and L

D. R^2 and $1/L$

Ans – b

28. For a tachometer the additive and multiplying constants are respectively

A. 0 and 100

B. 100 and 0

C. 0 and 100

D. 100 and 100

Ans – a

29. The multiplying constant of a theodolite is (where f is focal length of object lens, I is stadia hair interval and d is the distance between the optical centre of the object lens and the axis of the theodolite)

A. f/i

B. $(f + d)$

86. For a line AB

- A. the forebearing of AB and back bearing of AB differ by 180°
- B. the forebearing of AB and back bearing of BA differ by 180°
- C. both (a) and (b) are correct
- D. none is correct

Ans – a

87. In the prismatic compass

- A. the magnetic needle moves with the box
- B. the line of the sight does not move with the box
- C. the magnetic needle and graduated circle do not move with the box
- D. the graduated circle is fixed to the box and the magnetic needle always remains in the N-S direction

Ans – c

- C. the magnetic needle and graduated circle do not move with the box
- D. the graduated circle is fixed to the box and the magnetic needle always remains in the N-S direction

Ans – C

88. The angle of intersection of the two plane mirrors of an optical square is

- A. 30°
- B. 45°
- C. 60°
- D. 90°

Ans – b

89. Which of the following angles can be set out with the help of french cross staff?

- A. 45° only
- B. 90° only
- C. either 45° or 90°

82. A negative declination shows that the magnetic meridian is to the

- A. eastern side of the true meridian
- B. western side of the true meridian
- C. southern side of the true meridian
- D. none of the above

Ans – b

83. The horizontal angle between the true meridian and magnetic meridian at a place is called

- A. azimuth
- B. declination
- C. local attraction
- D. magnetic bearing

Ans – b

C. local attraction

D. magnetic bearing

Ans – b

84. The prismatic compass and surveyor's' compass

A. give whole circle bearing (WCB) of a line and quadrantal bearing (QB) of a line respectively

B. both give QB of a line and WCB of a line

C. both give QB of a line

D. both give WCB of a line

Ans – a

85. Local attraction in compass surveying may exist due to

A. incorrect levelling of the magnetic needle

B. loss of magnetism of the needle

C. friction of the needle at the pivot

D. presence of magnetic substances near the instrument

Ans – d

1. In triangulation, the best shape of the triangle would be

- A. equilateral
- B. right angled isosceles triangle
- C. isosceles with two base angles of 56° 14' each
- D. isosceles with two base angles of 65° 14' each

Ans – c

2. Parallax bar is used to measure

- A. parallax
- B. parallax difference
- C. difference in elevation
- D. relief displacement

Ans – b

C. difference in elevation

D. relief displacement

Ans – b

3. When the wind effect is not considered during flight planning, the result is
a

A. crab

B. drift

C. mosaic

D. none of the above

Ans – b

4. If f is the focal length, t is the angle of tilt, then the distance of isocentre on the principal line from the principal point is

A. $f \tan t$

B. $f \tan t/2$

C. $f \cot t$

D. $f \cot t/2$

74. 'Offsets' are

- A. short measurements from chain line
- B. ties or check lines which are perpendicular to chain line
- C. set of minor instruments in chain surveying
- D. chain lines which go out of a alignment

Ans – a

75. The error due to bad ranging is

- A. cumulative; positive
- B. cumulative; negative
- C. compensating
- D. cumulative; positive or negative

Ans – a

D. cumulative; positive or negative

Ans – a

76. Geodetic surveying is different from plane surveying because of

- A. the curvature of the earth
- B. the large difference of elevations between various points
- C. coverage of very large area
- D. undulations of the topography

Ans – a

77. The difference between the most probable value of a quantity and its observed value is

- A. true error
- B. weighted observation
- C. conditional error
- D. residual error

Ans – d

D. vertical circle is to its left and the bubble of the telescope is up

Ans – a

116. If the lower clamp screw is tightened and upper clamp screw is loosened, the theodolite may be rotated

- A. on its outer spindle with a relative motion between the Vernier and graduated scale of lower plate
- B. on its outer spindle without a relative motion between the Vernier and graduated scale of lower plate
- C. on its inner spindle with a relative motion between the Vernier and the graduated scale of lower plate
- D. on its inner spindle without a relative motion between the Vernier and the graduated scale of lower plate

Ans – c

117. If an internal focusing type of telescope the lens provided is

graduated scale of lower plate

Ans – c

117. If an internal focusing type of telescope, the lens provided is

- A. concave
- B. convex
- C. plano – convex
- D. plano – concave

Ans – a

118. Which of the following errors can be neutralized by setting the level midway between the two stations?

- A. error due to curvature only
- B. error due to refraction only
- C. error due to both curvature and refraction
- D. none of the above

Answer: Option C

A. steel

B. invar

C. linen

D. cloth and wires

Ans – d

71. For a well-conditioned triangle, no angle should be less than

A. 20°

B. 30°

C. 45°

D. 60°

Ans – b

D. 60°

Ans – b

72. An invar tap is made of an alloy of

A. copper and steel

B. brass and nickel

C. brass and steel

D. nickel and steel

Ans – d

73. Which of the following instruments is generally used for base line measurements?

A. chain

B. metallic tape

C. steel tape

D. invar tape

Ans – d

that (where e_1 and e_2 are errors in linear and angular measurements respectively and l is the length of a line)

A. $e_1 \propto \sqrt{l}$ and $e_2 \propto \frac{1}{\sqrt{l}}$

B. $e_1 \propto \sqrt{l}$ and $e_2 \propto \sqrt{l}$

C. $e_1 \propto \frac{1}{\sqrt{l}}$ and $e_2 \propto \sqrt{l}$

D. $e_1 \propto \frac{1}{\sqrt{l}}$ and $e_2 \propto \frac{1}{\sqrt{l}}$

Ans - a

34. 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

34. 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

Ans – b

35. The instrument used for accurate centering in plane table survey is

- A. spirit level
- B. alidade
- C. plumbing fork
- D. trough compass

Ans – c

36. The two -point problem and three -point problem are methods of

- A. resection

are respectively

- A. + and -
- B. - and +
- C. + and +
- D. - and -

Ans - b

127. Which of the following arithmetic checks can be applied in rise and fall method? (ES2000)

- A. $\sum B.S. - \sum F.S. = \sum Rise - \sum Fall$ only
- B. $\sum B.S. - \sum F.S. = Last\ R.L. - first\ R.L.$
- C. $\sum Rise - \sum Fall = Last\ R.L. - first\ R.L.$
- D. $\sum B.S. - \sum F.S. = \sum Rise - \sum Fall = Last\ R.L. - First\ R.L.$

D. $\sum \text{Rise} - \sum \text{Fall} = \text{Last R.L.} - \text{First R.L.}$

C. $\sum \text{Rise} - \sum \text{Fall} = \text{Last R.L.} - \text{first R.L.}$

D. $\sum \text{B.S.} - \sum \text{F.S.} = \sum \text{Rise} - \sum \text{Fall} = \text{Last R.L.} - \text{First R.L.}$

Ans - d

128. If the staff is not held vertical at a levelling station, the reduced level calculated from the observation would be

A. true R.L.

B. more than true R.L.

C. less than true R.L.

D. none of the above

Ans - c

119. Height of instrument method of levelling is

- A. more accurate than rise and fall method
- B. less accurate than rise and fall method
- C. quicker and less tedious for large number of intermediate sights
- D. none of the above

Ans – c

120. The rise and fall method

- A. is less accurate than height of instrument method
- B. is not suitable for levelling with tilting levels
- C. provides a check on the reduction of intermediate point levels
- D. quicker and less tedious for large number of intermediate sights

Ans – c

D. quicker and less tedious for large number of intermediate sights

Ans - c

121. The correction for refraction as applied to staff reading is (where R is radius of earth)

A. $+\frac{1}{7}\left(\frac{d^2}{2R}\right)$

A.

B. $-\frac{1}{7}\left(\frac{d^2}{2R}\right)$

B. -

C. $+\frac{1}{7}\left(\frac{d^2}{R}\right)$

C.

D. $-\frac{1}{7}\left(\frac{d^2}{R}\right)$

D. -

Ans - a

122. Refraction correction

A. completely eliminates curvature correction

D. trigonometrical levelling

Ans – c

48. Contour interval is

- A. the vertical distance between two consecutive contours
- B. the horizontal distance between two consecutive contours
- C. the vertical distance between two points on same contour
- D. the horizontal distance between two points on same contour

Ans – a

49. Closed contours, with higher value inwards, represents a

- A. depression
- B. hillock
- C. plain surface

- A. depression
- B. hillock
- C. plain surface
- D. none of the above

Ans – b

50. A series of closely spaced contour lines represents a

- A. steep slope
- B. gentle slope
- C. uniform slope
- D. plane surface

Ans – a

51. Direct method of contouring is

- A. a quick method
- B. adopted for large surveys only
- C. most accurate method

$$C. \sqrt{\frac{36}{0.06735}} \text{ km}$$

$$D. 36 \sqrt{0.06735} \text{ km}$$

Ans – C

63. A building is an obstacle to

- A. chaining but not ranging
- B. ranging but not chaining
- C. both chaining and ranging
- D. neither chaining nor ranging

Ans – C

64. Which of the following is an obstacle to chaining but not to ranging?

- A. river

64. Which of the following is an obstacle to chaining but not to ranging?

- A. river
- B. hillock
- C. building
- D. none of the above

Ans – a

65. The position of a point can be fixed more accurately by

- A. cross staff
- B. optical square
- C. oblique offsets
- D. perpendicular offsets

Ans – d

66. The main object of running a tie line is

- A. to check accuracy of work

- A. horizontal line
- B. line parallel to the mean spheroidal surface of earth
- C. line passing through the centre of cross hairs and the centre of eye piece
- D. line passing through the objective lens and the eye – piece of a dumpy or tilting level

Ans – b

102. The adjustment of horizontal cross hair is required particularly when the instrument is used for

- A. levelling
- B. prolonging a straight line
- C. measurement of horizontal angles
- D. all of the above

Ans – a

C. measurement of horizontal angles

D. all of the above

Ans – a

103. Which of the following errors is not eliminated by the method of repetition of horizontal angle measurements?

A. error due to eccentricity of verniers

B. error due to displacement of station signals

C. error due to wrong adjustment of line of collimation and trunnion axis

D. error due to inaccurate graduation

Ans – b

104. The error due to eccentricity of inner and outer axes can be eliminated by

A. reading both verniers and taking the mean of the two

B. taking both face observations and taking the mean of the two

C. double sighting

D. taking mean of several readings distributed over different portions of the

- B. contour gradient
- C. level line
- D. line of gentle slope

Answer: Option B

56. Contour interval is

- A. inversely proportional to the scale of the map
- B. directly proportional to the flatness of ground
- C. larger for accurate works
- D. larger if the time available is more

Ans – a

57. Dumpy level is most suitable when

- A. the instrument is to be shifted frequently

57. Dumpy level is most suitable when

- A. the instrument is to be shifted frequently
- B. fly levelling is being done over long distance
- C. many readings are to be taken from a single setting of the instrument
- D. all of the above

Ans – c

58. The difference of levels between two stations A and B is to be determined. For best results, the instrument station should be

- A. equidistant from A and B
- B. closer to the higher station
- C. closer to the lower station
- D. as far as possible from the line AB

Ans – a

59. While doing levelling in undulating terrain, it is preferable to set the level on

- B. to take details of nearby objects
- C. to take offsets for detailed surveying
- D. none of the above

Ans – b

67. Number of links in a 30 m metric chain is

- A. 100
- B. 150
- C. 180
- D. 200

Ans – b

68. 'Ranging' is the process of

- A. fixing ranging rods on the extremities of the area

68. 'Ranging' is the process of

- A. fixing ranging rods on the extremities of the area
- B. aligning the chain in a straight line between two extremities
- C. taking offsets from a chain line
- D. chaining over a range of mountains

Ans – b

69. The principle of 'working from whole to part' is used in surveying because

- A. plotting becomes easy
- B. survey work can be completed quickly
- C. accumulation of errors is prevented
- D. all of the above

Ans – c

70. A metallic tap is made of

D. any angle

Ans – c

90. Which of the following methods of offsets involves less measurement on the ground?

A. method of perpendicular offsets

B. method of oblique offsets

C. method of ties

D. all involve equal measurement on the ground

Ans – a

91. The permissible error in chaining for measurement with chain on rough or hilly ground is

A. 1 in 100

B. 1 in 250

91. The permissible error in chaining for measurement with chain on rough or hilly ground is

- A. 1 in 100
- B. 1 in 250
- C. 1 in 500
- D. 1 in 1000

Ans – b

92. The correction for sag is

- A. always additive
- B. always subtractive
- C. always zero
- D. sometimes additive and sometimes subtractive

Ans – b

93. Cross staff is an instrument used for

- A. measuring approximate horizontal angles
- B. setting out right angles

f

C. $\frac{f}{i+d}$

f

D. $\frac{f}{d+i}$

Ans - a

30. The number of horizontal cross wires in a stadia diaphragm is

A. one

B. two

C. three

D. four

Ans - c

31. Horizontal distances obtained by tacheometric observations

A. require slope correction

Ans – c

31. Horizontal distances obtained by tacheometric observations

- A. require slope correction
- B. require tension correction
- C. require slope and tension corrections
- D. do not require slope and tension corrections

Ans – d

32. Subtense bar is an instrument used for

- A. levelling
- B. measurement of horizontal distances in plane areas
- C. measurement of horizontal distances in undulated areas
- D. measurement of angles

Ans – c

33. The bowditch method of adjusting a traverse is based on the assumption

Ans - c

12. Setting out a simple curve by two theodolite method does not require
- A. angular measurements
 - B. linear measurements
 - C. both angular and linear measurements
 - D. none of the above

Ans - b

13. The radial offset at a distance X from the point of commencement of curve of radius R is given by

A. $\sqrt{R^2 - X^2} - R$

B. $R - \sqrt{R^2 - X^2}$

[2] [1]

A. $\sqrt{R^2 - X^2} - R$

B. $R - \sqrt{R^2 - X^2}$

C. $R - \sqrt{R^2 + X^2}$

D. $\sqrt{R^2 + X^2} - R$

Ans - d

14. In a reverse curve, the super elevation provided at the point of reverse curvature is

A. zero

B. minimum

C. maximum

D. dependent on elements of reverse curve

Ans - a

15. If r is the radius of curvature at any point of a transition curve and l is the distance from the beginning of the transition curve to that point, then for ideal

108. Which of the following errors can be eliminated by taking mean of both face observations?

- A. error due to imperfect graduations
- B. error due to eccentricity of verniers
- C. error due to imperfect adjustment of plate levels
- D. error due to line of collimation not being perpendicular to horizontal axis

Ans - d

109. Theodolite is an instrument used for

- A. tightening the capstan – headed nuts of level tube
- B. measurement of horizontal angles only
- C. measurement of vertical angles only
- D. measurement of both horizontal and vertical angles

Ans – d

C. measurement of vertical angles only

D. measurement of both horizontal and vertical angles

Ans – d

110. The process of turning the telescope about the vertical axis in horizontal plane is known as

A. transiting

B. reversing

C. plunging

D. swinging

Ans – d

111. The cross hairs in the surveying telescope are placed

A. midway between eye piece and objective lens

B. much closer to the eye – piece than to the objective lens

C. much closer to the objective lens than to the eye piece

D. anywhere between eye – piece and objective lens

Ans – b

112. Size of theodolite is specified by

- A. the length of telescope
- B. the diameter of vertical circle
- C. the diameter of lower plate
- D. the diameter of upper plate

Ans – c

113. Which of the following is not the function of levelling head?

- A. to support the main part of the instrument
- B. to attach the theodolite to the tripod
- C. to provide a means for levelling the theodolite
- D. none of the above

Ans – d

D. none of the above

Ans – d

114. For which of the following permanent adjustments of theodolite, the spire test is used?

- A. adjustment of plate levels
- B. adjustment of line of sight
- C. adjustment of horizontal axis
- D. adjustment of altitude bubble and vertical index frame

Ans – c

115. A telescope is said to be inverted if its

- A. vertical circle is to its right and the bubble of the telescope is down
- B. vertical circle is to its right and the bubble of the telescope is up
- C. vertical circle is to its left and the bubble of the telescope is down

- B. two centred compound curve
- C. three centred compound curve
- D. four centred compound curve

Ans – c

9. If the degree of a curve is 1° , then radius of the curve is equal to

- A. 5400 m
- B. 1720 m
- C. $1720/\pi$ m
- D. $3440/\pi$ m

Ans – b

10. The length of the tangent of a curve of radius R and angle of deflection A is given by

Ans – b

10. The length of the tangent of a curve of radius R and angle of deflection A is given by

A. $R \cos (\Delta/2)$

B. $R \tan (\Delta/2)$

C. $R \sin (\Delta/2)$

D. $R \cot (\Delta/2)$

Ans – b

11. The length of the long chord of a simple circular curve of radius R and angle of deflection A is

A. $R \cos (\Delta/2)$

B. $2R \cos (\Delta/2)$

C. $2R \sin (\Delta/2)$

D. $R \sin (\Delta/2)$

- B. outside of one handle to outside of other handle
- C. outside of one handle to inside of other handle
- D. inside of one handle to inside of other handle

Ans – b

98. If the length of a chain is found to be short on testing, it can be adjusted by

- A. straightening the links
- B. removing one or more small circular rings
- C. closing the joints of the rings if opened out
- D. all of the above

Ans – a

99. For accurate work, the steel band should always be used in preference to chain because the steel band

Ans – a

99. For accurate work, the steel band should always be used in preference to chain because the steel band

- A. is lighter than chain
- B. is easier to handle
- C. is practically inextensible and is not liable to kinks when in use
- D. can be easily repaired in the field

Ans – c

100. The following sights are taken on a “turning point”

- A. foresight only
- B. backsight only
- C. foresight and backsight
- D. foresight and intermediate sight

Ans – c

101. A ‘level line’ is a

Ans – a

44. The size of a plane table is

A. 750 mm × 900 mm

B. 600 mm × 750 mm

C. 450 mm × 600 mm

D. 300 mm × 450 mm

Ans – b

45. Intersection method of detailed plotting is most suitable for

A. forests

B. urban areas

C. hilly areas

- A. forests
- B. urban areas
- C. hilly areas
- D. plains

Ans – C

46. The type of surveying which requires least office work is

- A. tacheometry
- B. trigonometrical levelling
- C. plane table surveying
- D. theodolite surveying

Ans – C

47. Benchmark is established by

- A. hypsometry
- B. barometric levelling
- C. spirit levelling

- B. partially eliminates curvature correction
- C. adds to the curvature correction
- D. has no effect on curvature correction

Ans – b

123. With the rise of temperature, the sensitivity of a bubble tube

- A. decreases
- B. increases
- C. remains unaffected
- D. none of the above

Ans – a

124. The difference between a level line and a horizontal line is that

- A. level line is a curved line while horizontal line is a straight line

124. The difference between a level line and a horizontal line is that

- A. level line is a curved line while horizontal line is a straight line
- B. level line is a normal to plumb line while horizontal line may not be normal to plumb line at the tangent point to level line
- C. horizontal line is normal to plumb line while level line may not be normal to the plumb line
- D. both are same

Ans – a

125. The sensitivity of a bubble tube can be increased by

- A. increasing the diameter of the tube
- B. decreasing the length of bubble
- C. increasing the viscosity of liquid
- D. decreasing the radius of curvature of tube

Ans - a

126. As applied to staff readings, the corrections for curvature and refraction

D. $1/8$ and $1/4$

Ans – c

23. For a star at its upper transit, the local sidereal time is equal to

A. H.A. of the star

B. declination of the star

C. R.A. of the star

D. none of the above

Ans – c

24. The limiting minimum declination of a circumpolar star having latitude 40° N is

A. 40°

B. 50°

40° N is

A. 40°

B. 50°

C. 90°

D. 0°

Ans – b

25. The relationship between tropical year TY and sidereal year SY is

A. $TY > SY$

B. $TY < SY$

C. $TY = SY$

D. any of the above

Ans – b

26. The difference in elevation of points between a vertical and a tangent is

A. directly proportional to its horizontal distance from the point of tangency

C. measuring bearings of the lines

D. none of the above

Ans – b

94. Normal tension is that pull which

A. is used at the time of standardizing the tape

B. neutralizes the effect due to pull and sag

C. makes the correction due to sag equal to zero

D. makes the correction due to pull equal to zero

Ans – b

95. Which one of the following is not used in measuring perpendicular offsets?

A. line ranger

B. steel tape

95. Which one of the following is not used in measuring perpendicular offsets?

- A. line ranger
- B. steel tape
- C. optical square
- D. cross staff

Ans – a

96. The maximum tolerance in a 20 m chain is

- A. ± 2 mm
- B. ± 3 mm
- C. ± 5 mm
- D. ± 8 mm

Ans – c

97. The length of a chain is measured from

- A. centre of one handle to centre of other handle

- A. deflection angle
- B. included angle
- C. direct angle
- D. none of the above

Ans – a

41. If in a closed traverse, the sum of the north latitudes is more than the sum of the south latitudes and also the sum of west departures is more than the sum of the east departures, the bearing of the closing line is in the

- A. NE quadrant
- B. SE quadrant
- C. NW quadrant
- D. SW quadrant

Ans – b

C. NW quadrant

D. SW quadrant

Ans – b

42. If the staff is held normal to the line of sight and the angle of elevation and depression are kept same, then the horizontal distance between instrument station and staff station computed by observations will be

A. same in both cases

B. greater at an angle of elevation than at an angle of depression

C. greater at an angle of depression than at an angle of elevation

D. unpredictable

Ans – b

43. Detailed plotting is generally done by

A. radiation

B. traversing

C. resection

D. all of the above

B. orientation

C. traversing

D. resection and orientation

Ans – d

37. The resection by two- point problem as compared to three- point problem

A. gives more accurate problem

B. takes less time

C. require more labour

D. none of the above

Ans – c

38. Bowditch rule is applied to

A. an open traverse for graphical adjustment

38. Bowditch rule is applied to

- A. an open traverse for graphical adjustment
- B. a closed traverse for adjustment of closing error
- C. determine the effect of local attraction
- D. none of the above

Ans – b

39. 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

Ans – b

40. The angle between the prolongation of the preceding line and the forward line of a traverse is called

graduated circle

Ans – a

105. In the double application of principle of reversion, the apparent error is

- A. equal to true error
- B. half the true error
- C. two times the true error
- D. four times the true error

Ans – d

106. If a tripod settles in the interval that elapses between taking a back sight reading and the following foresight reading, then the elevation of turning point will

- A. increase

106. If a tripod settles in the interval that elapses between taking a back sight reading and the following foresight reading, then the elevation of turning point will

- A. increase
- B. decrease
- C. not change
- D. either 'A' or 'B'

Answer: Option A

107. Which of the following errors cannot be eliminated by taking both face observations?

- A. error due to horizontal axis not being perpendicular to the vertical axis
- B. index error i.e. error due to imperfect adjustment of the vertical circle vernier
- C. error due to non-parallelism of the axis of telescope level and line of collimation
- D. none of the above

Ans – b

5. Overtuning of vehicles on a curve can be avoided by

- A. compound curve
- B. vertical curve
- C. reverse curve
- D. transition curve

Ans – d

6. Different grades are joined together by a

- A. compound curve
- B. transition curve
- C. reverse curve
- D. vertical curve

- B. transition curve
- C. reverse curve
- D. vertical curve

Ans - d

7. The angle subtended by the long chord of a simple circular curve at its centre is equal to

- A. angle of deflection
- B. two times the angle of deflection

C. 180° - angle of deflection

D. $\left(180^\circ - \frac{\text{angle of deflection}}{2} \right)$

Ans - a

8. A curve tangential to four straight lines and consisting of arcs of different radii is known as

- A. one centred compound curve