Q :) The curvature of the earth's surface is taken into account if the extent of survey is more than

(a) 100 km^2

(b) 160 km^2

(c) 500 km^2

(d) 260 km^2

Q :) The survey in which the curvature of the earth is taken into account is called:

(a) Geodetic survey

(b) Plane survey

(c) Hydrographical survey

(d) Topographical survey

Q :) Which of the following statements in respect of a map A having scale 1 : 1000 and another map B having scale 1 : 500 is true?

(a) Map A is large scale map compared to map B

(b) Map B is a large scale map compared to map A

(c) Map B is a more detailed map compared to map A

(d) None of the above

Q :) Difference in length of an arc and its subtended chord on earth's surface for a distance of 18.2 km is-

(a) 10 mm

(b) 15 mm

(c) 22 mm

(d) 100 mm

Q :) A scale representing either three units or only one unit and its fractions upto second place of decimal point is-

(a) Diagonal scale

(b) Comparative scale

(c) Vernier scale

(d) Shrunk scale

Q :) If the smallest division of a vernier is longer than the smallest division of its primary scale, the vernier is known as _____

(a) Direct vernier

(b) Double vernier

(c) Simple vernier

(d) Retrograde vernier

Q :) In case of a direct vernier scale-

(a) Graduations increase in opposite direction in which graduations of the main scale increase

(b) Smallest division is longer than smallest divison of the main scale 1

(c) Graduations increase in the same direction in which graduations of the main scale increase

(d) None of these

Q :) What is the difference between the sum of interior angles of plane triangle and spherical triangle for area of triangle 195 sq. kilometer on the Earth’s surface?

(a) One degree

(b) One minute

(c) One second

(d) One radian

Q :) Which of the following scale of the map is not affected due to shrinking of map ?

(a) Engineer's scale

(b) Graphical scale

(c) Representative fraction

(d) None of these

Q :) The maximum error (mm) on the drawing should not be greater than

(a) 0.025

(b) 0.01

(c) 0.25

(d) 0.1

Q :) Calculate the length of one division of the vernier scale, if least count of the combination of main and vernier scale is 0.02mm. The least count of the main scale is 1 mm.

(a) 1

(b) 0.98

(c) 1.02

(d) 1.03

Q :) A line of 5 m on the original map is shrunk to4.6m. Calculate the shrunk scale if the original Scale of the map was 1cm = 80m.

(a) 1cm = 73.6m

(b) 1cm = 79.6m

(c) 1cm = 86.95m

(d) 1cm = 92.4m

Q :) What is the common scale adopted in the form of a representative fraction for the forest map?

(a) 1/100

(b) 1/10000

(c) 1/1000

(d) 1/25000

Q :) Indian Road Congress (IRC) was setup in the year

(a) 1950

(b) 1978

(c) 1956

(d) 1934

Q :) A rectangular area of 12 km^2 is represented by 1.5 cm x 0.5 cm rectangle on a map. The scale of the map is:

(a) 1:12000

(b) 1: 16000

(c) 1: 1000

(d) 1: 400000

Q :) A method usually adopted to contour rough mountainous region is:

(a) Tacheometry

(b) chain and level

(c) plane table

(d) chain and compass

Q :) The area of a plan of an old survey plotted on a sheet is found to have shrunk so that a line originally 10 cm long now measures 9.7 cm only. Calculate the shrinkage factor.

(a) 0.97

(b) 1.03

(c) 9.7

(d) 97

Q :) An invar tape is made of an alloy of :

(a) Copper and steel

(b) Brass and nickel

(c) Nickel and steel

(d) Brass and steel

Q :) The construction of optical square is based on the principal of

(a) Reflection

(b) Refraction

(c) Double refraction

(d) Double reflection

Q :) A line joining some fixed points on the main survey lines is called

(a) Check line

(b) Tie line

(c) Chain line

(d) Base line

Q :) Every 20 m chain should be accurate to within

(a) $\pm$2 mm

(b) $\pm$ 5 mm

(c) $\pm$ 8 mm

(d) None of the above

Q :) Method used for chaining on sloping ground is-

(a) By stepping method
(b) By hypotenusal allowance method
(c) By clinometer method
(d) Both stepping method and hypotenusal method

Q :) Permissible limits of error in chaining for measurement on rough or hilly ground is

(a) 1:1000

(b) 1: 2000

(c) 1: 250

(d) 1:500

Q :) During chaining along a straight line, the leader of the survey party has three arrows and while follower has five arrows, the distance of the follower from the starting point will be

(a) Four chains

(b) Three chains

(c) Five chains

(d) None of these

Q :) Check lines (or proof lines) in chain surveying are essentially required

(a) To plot the chain lines

(b) To plot the offsets

(c) To indicate the accuracy of the survey

(d) To increase the out-turn

Q :) An angle of 45° with a chain line may be setout with

(a) Optical square

(b) Open cross staff

(c) French cross staff

(d) Prismatic square

Q :) Which one is the correct order of the tapes based on their accuracy?

(a) Linen tape > Invar tape > Metallic tape>Steel tape

(b) Invar tape > Steel tape > Metallic tape>linen tape

(c) Metallic tape > Steel tape > Linen tape>Invar tape

(d) Metallic tape > Steel tape > Invar tape>(d) linen tape

Q :) Calculate the correction for temperature for a tape of length 'L' if the increase in temperature is 'T above the standard temperature. The coefficient of the temperature for tape material is 'a’.

(a) aT/L

(b) -aT/L

(c) -aTL

(d) +aTL

Q :) Which one is the CORRECT option for the cumulative errors ?

1. It decreases with an increased in measurement.
2. It is directly proportional to the length of the line.
3. It may be positive or negative
4. It is inversely proportional to the lengthof the line.

(a) 1, 3 and 4
(b) 1 and 3
(c) 2 and 3
(d) Only 2

Q :) Which of the following instrument is used for setting out right angles ?

(a) Offset rod

(b) Clinometers

(c) Plumb bob

(d) Prism square

Q :) Bunter's chain is____m long

(a) 21.12

(b) 20.12

(c) 22.12

(d) 23.12

Q :) When levelling is done at a busy construction site, what does the hand signal Movement of right arm by 30° given by the instrument man (as shown in figure) to the man holding the staff signify?

(a) Move top of staff to my right
(b) Move to my right
(c) Move top of staff to my left
(d) Move to my left

Q :) A prism square is used to

(a) set out a horizontal circular curve

(b) set out a line at 45° to a survey line, without any linear measurement

(c) set a line at right angles to a survey line

(d) get an enlarged view of station marks

Q :) Inclination of the compass needle to the horizontal towards the pole is called

(a) Declination

(b) Dip

(c) Bearing

(d) Azimuth

Q :) The quadrantal bearing of the line lies in the third quadrant making angle in clockwise with the north is

(a) N(0-180°)W

(b) N(0-180°)E

(c) S(0-180°)E

(d) S(0-180°)W

Q :) Calculate the whole circle bearing of a line, if its reduced bearing is N30°W.

(a) 30^0

(b) 330^0

(c) N 330°W

(d) 560^0 W

Q :) Which of the following is TRUE for the limit of accuracy in a compass surveying ?

(a) Should not more than 5 minutes

(b) Should not be less than 5 minutes

(c) Should not more than 10 minutes

(d) Should not be less than 10 minutes

Q :) If the observed fore bearing of line AB is 202°30', then the back bearing is:

(a) 67°30’

(b) 22° 30’

(c) 157° 30’

(d) 112° 30’

Q :) In a compass surveying, if the whole circle bearing of a line is 237^0 45, then its quadrantal bearing is:

(a) S 47° 45’E

(b) S 57° 45’W

(c) S 32° 15’E

(d) S 32° 15'E

Q :) If a line AB has a whole circle bearing (WCB) between 90 degree and 180 degree, then the correct expression used to calculate reduced bearing (RB) is

(a) RB NCB 900°

(b) RB WCB

(c) RB 360°- WCB

(d) RB = 180° WCB

Q :) The magnetic bearing of a line is 44°30'. What is the true bearing if the magnetic declination is 6°30' East?

(a) 51^0 00’

(b) $97^0$00’

(c) 38^0 00’

(d) 83^0 30’

Q :) If the fore bearing of a line AB is 40° 15, then what will be the fore bearing of line BA?

(a) 139°45’

(b) $40^{0}15’$

(c) 220°15

(d) 130^{0} 15'

Q :) Dip of a magnetic needle at equator and pole is respectively:

(a) 78° and 12°

(b) 90° and 0°

(c) 0° and 90°

(d) 12° and 78°

Q :) A declination of 3° east means:

(a) magnetic north is 3° west of true north

(b) true north is 3° east of magnetic north

(c) true south is 3° east of magnetic south

(d) magnetic north is 3° east of true north

Q :) The horizontal angle made by the survey line with reference to arbitrary meridian passing through one of the extremities is called

(a) arbitrary bearing

(b) true bearing

(c) magnetic bearing

(d) arbitrary meridian

Q :) If the latitude and departure of a survey line are negative, then the direction of mentioned lines in whole circle bearing system will be in the range of:

(a) 0° to 90°

(b) 180 to 270°

(c) 90° to 180°

(d) 270° to 360°

Q :) Convert 122°30' whole circle bearing into quadrant bearing

(a) $S57^0$ 30’E

(b) $N57^0$ 30’E

(c) $S57^0$ 30’ W

(d) $N57^0$ 30'W

Q :) The magnetic bearing of a survey line is found to be 33°40. If the declination is 3 40'E. the true bearing is

(a) $37^0\,40'$

(b) $33^0\,40'$

(c) $41^0 00'$

(d) $30^0\,00'$

Q :) The 'Scale plate' of a theodolite is :

(a) The upper plate

(b) The lower plate

(c) Both the above

(d) None of the above

Q :) The angle between the prolongation of the preceding line and the forward line of a traverse is called:

(a) Direct angle
(b) Excluded angle
(c) Deflection angle
(d) Included angle

Q :) How does the size of the theodolite specified?

(a) By the length of telescope

(b) By the diameter of vertical circle

(c) By the diameter of upper plate

(d) By the diameter of lower plate

Q :) Which one is the correct sequence for the temporary adjustment of the theodolite?

(a) Centering, elimination of parallax, levelling and setting.

(b) Centering, setting, elimination of parallax and levelling.

(c) Setting, centering, levelling and elimination of parallax.

(d) Setting, levelling, elimination of parallax and centering.

Q :) Which of the following instrument is used for centering the theodolite in windy conditions ?

(a) Cross staff
(b) Optical plummet
(c) Spirit level
(d) Optical square

Q :) In which of the following plane, the telescope of the theodolite is twined in order to swing?

(a) Horizontal plane

(b) Horizontal axis

(c) Vertical plane

(d) Inclined plane

Q :) Calculate the distance between the instrument constant is and the staff readings are 1.56m, 2.05m and 2.56m. The multiplying constant is 100 additive

(a) 110

(b) 64

(c) 112

(d) 215.67

Q :) Which of the following is NOT a traversing survey?

(a) Chain and compass survey

(b) Chain survey

(c) Tacheometer survey

(d) Plane table survey

Q :) The process of turning the telescope in the theodolite in vertical plane through 180° about the trunnion axis, is called

(a) Swinging

(b) Centring

(c) Transiting

(d) levelling

Q :) Two distances 200 m and 298 m are measured tacheometer and instrument from corresponding staff intercepts are 2m and 3m respectively. Additive constant will be :

(a) 1

(b) 4

(c) 2

(d) 98

Q :) Select the incorrect statement from following.

(a) In the total station, the angles and distance are recorded in the digital form.

(b) The total station has all facilities of tacheometer operated electronically.

(c) The total station is operated through the control panel.

(d) The total station cannot measure horizontal distance less than 2 km.

Q :) 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 east departures, the bearing of the closing line is in the

(a) SE quadrant

(b) NE quadrant

(c) NW quadrant

(d) SW quadrant

Q :) Relative error of the closure is the ratio of

(a) Closing error to sum of departure

(b) Closing error to sum of latitude

(c) Closing error too perimeter of traverse

(d) Latitude to departure

Q :) If 'e' is the closing error in the bearing for a 5 sided traverse, then what will be correction in the bearing of 5th line?

(a) 0.8 e

(b) 0.5 e

(c) e

(d) 0.2 e

Q :) Bowditch rule is also termed as:

(a) graphical rule

(b) Compass rule

(c) transit rule

(d) axis rule

Q :) The departure of survey line of a traverse is defined as

(a) its coordinate length measured at right angles to the meridian direction

(b) its coordinate length measured parallel to an assumed meridian direction

(c) the projection of the line in any reference direction

(d) its coordinate length measured in thenorth-south meridian

Q :) The rise and fall method of levelling is

(a) Less accurate than height of instrument method

(b) Is not suitable for levelling with tilting levels.

(c) Quicker and less tedious for large number of intermediate sights

(d) Provides a check on the reduction of intermediate levels

Q :) The line normal to the plumb line is known as

(a) Horizontal line

(b) Level line

(c) Vertical line

(d) Datum line

Q :) Cross hairs in surveying telescopes are fitted

(a) In the objective lens.

(b) At the centre of the telescope

(c) At the optical centre of the eyepiece

(d) In front of the eyepiece

Q :) The correction in elevations due to the curvature and refraction is proportional to

(a) D/R

(b) D^2/R

(c) R/D^2

(d) R/D

where R is the radius of curvature of Earth and D is the horizontal distance.

Q :) Which of the following is the correct meaning of the term level line' in surveying?

(a) The line parallel to the mean spheroidal surface of earth

(b) The line is horizontal

(c) The line passing through the centre of cross-hairs and the centre of the eye piece

(d) The line passing through the objective and the eye piece of a dumpy or lens tilting level

Q :) The method of levelling used to carry out reconnaissance of area is:

(a) Check levelling

(b) Fly levelling

(c) Profile levelling

(d) Simple levelling

Q :) An internal focusing typing surveying telescope may be focused by the movement of_____

(a) objective glass of the telescope
(b) convex-lens in the telescope
(c) concave lens in the telescope
(d) plane-convex lens in the telescope

Q :) A dumpy level is set up with its eyepiece vertically over a peg A. The height from the top peg A to the center of the eyepiece is 1.540 m and the reading of peg B is 0.705 m. The level is then set over B. The height of the eyepiece above peg B is 1.490 m and a reading A is 2.195 m. The difference in level on between A and B is

(a) 3.030 m

(b) 2.900 m

(c) 0.770 m

(d) 0.785 nm

Q :) The telescope of a Dumpy level

(a) Is rigidly fixed to the levelling head

(b) Can be tilted in a vertical plane

(c) Can be taken out of its supports and reversed

(d) Permits interchange of eye piece and object glass

Q :) The sensitiveness of a level tube decreases if

(a) Radius of curvature of its inner surface is increased

(b) Diameter of the tube is increased

(c) Length of the vapour bubble is increased

(d) Both viscosity and surface tension are increased

Q :) Calculate the combined correction for curvature and refraction (in m) for a distance of 2 km.

(a) 0.045

(b) 0.135

(c) 3.14

(d) 0.269

Q :) What is the correct sequence of the temporary adjustment of level?

(a) Centering, levelling and setting
(b) Levelling, setting and centering
(c) Setting, centering and levelling
(d) Setting, levelling and centering

Q :) The reading taken on a staff held at a distance of 50 m from the instrument with the ablecentral is 1.465. When the bubble is moved 4 divisions out of the centre, the staff reading is 1.472 m. What will be the radius of curvature(m) of the bubble tube, if the length of one division is 2 mm?

(a) 30

(b) 43.7

(c) 66.344

(d) 57.14

Q :) The back sight reading taken from a level at a bench mark is 1.56 m and a fore sight at a point A is taken on the inverted staff the point A, if the reduced level of the bench mark is150 m.

(a) 146.79 m

(b) 149.91 m

(c) 153.21 m

(d) 152.8 m

Q :) The difference between the last reduced leveland the first reduced level is equal to

(a) Difference between the Sum of back sights and intermediate sights

(b) Difference between the Sum of back sights and reduced level of bench mark.

(c) Difference between the sum of back sights and fore sights

(d) Difference between the sum of back sights and height of instrument

Q :) An error due to the earth's curvature andrefraction is to be corrected using:

(a) $C_c = 0.0785\ D^2$

(b) $C_c\ 0.0136\ D^2$

(c) $C_c.\ 0.0673\ D^2$

(d) $C_c = 0.0112\ D^2$

Q :) A levelling work was carried out along a falling gradient using a dumpy level and a levelling staff of 3 m length. The following successive readings were taken: 1.155, 2.74, 075. 1.79m.What is the correct order of booking the four readings in the field book? (BS: back sight, FS: fore sight, IS: intermediate sight)

(a) BS, IS, FS, BS

(b) BS, FS, BS, FS

(c) BS, FS, IS, FS

(d) BS, IS, BS, FS

Q :) A backsight (BS) reading taken by a level instrunment set at station A on a bench mark(RL= 210.852) is 2.325 m, and foresight (FS) at a station is measured as 1.835 m. What will be the reduced level (RL) of the station A?

(a) 211.654 m

(b) 210.362 m

(c) 210.842 m

(d) 211.342 m

Q :) Choose the correct option from among the following with respect to the given statements.

Statement (i): The effect of the curvature of the earth is to cause an object to appear lower.

Statement (ii): The effect of refraction is to cause an object to appear higher.

(a) Only (i) is correct

(b) Both (i) and (ii) are correct

(c) Only (i) is correct

(d) (i) is correct and (ii) is incorrect

Q :) The back sight at a station A is 0.865 m and the height of instrument is 561.365 m. The reduced level at A will be (in unit m)

(a) 558.705

(b) 559.260

(c) 560.500

(d) 560.550

Q :) In the case of dumpy level, the two peg test is performed to ensure that

(a) horizontal cross hairs in a plane perpendicular to the vertical axis

(b) horizontal cross hairs is parallel to the bubble tube axis

(c) the axis of the bubble tube is perpendicular to the vertical axis

(d) line of collimation of the telescope is parallel to the bubble tube axis.