SSC JE PRE 2021
Civil Engineering

- **Start Date** *15 June 2021*
- **Duration 400+hours**
- **Validity 6 Months**
- **Live Online Classes**

₹ **2199/-**

Q :) The plane of a map was photo copied to reduced size such that a line originally 100 mm, measures 90 mm, The original scale of the plane was 1 : 1000. the revised scale is

A : 1 : 900

B : 1 : 1111

C : 1 : 1121

D : 1 : 1221

Q :) A surveying is conducted with a view to prepare the map of an area of a scale of 1 : 1000. If a scale with least count of 0.1 mm is used for plotting what would be the accuracy in length measurement in the field?

A : 0.325 m

B : 0.01 m

C : 0.1 m

D : 1 m

Q :) The side of a rectangle are (120 $\pm$ 0.05) m and (180 $\pm$ 0.06)m. The probable error in the area will be:

A : $\pm$ 16.80 m^2

B : $\pm$ 12.35 m^2

C : $\pm$16.70 m^2

D : $\pm$16.20 m^2

Q :) Probable error of an observation of unit weight is given by:

A : $\pm$ Standard error

B : $\pm \dfrac{1}{\sqrt{5}}$ × standard error

C : $\pm$ 0.5 × standard error

D : $\pm$ 0.6745 × standard error

Q :) The relationship between the probable error of single observation (E_s) and the probable error of the mean (E_M) is:

A : $E_m = \dfrac{E_s}{n}$

B : $E_m = \dfrac{E_s}{\sqrt{n}}$

C : $E_m = \dfrac{E_s}{n^{2/3}}$

D : $E_m = \dfrac{E_s}{2n^{1/2}}$

Q :) The residual error is the difference between :

A : True value and observed value of a quantity

B : Most probable value and observed value of a quantity

C : Most probable value and true value of a quantity

D : None of the above

Q :) Theory of probability is applied to:

A : Accidental errors only

B : Cumulative errors only

C : Both accidental and cumulative error

D : None of the above

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

A : Geodetic surveying

B : Plane surveying

C : Preliminary surveying

D : Topographical surveying

Q :) 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

Q :) Geodetic survey of India was done, using:

A : Triangulation

B : Traversing

C : Trilateration

D : None of the above

Q :) Which one of the following is not a transition curve?

A : Cubic spiral

B : Cubic parabola

C : Bermalli's leminiscale

D : Sag curve

Q :) Which of the following can be used as a map substitute?

A : Terrestrial photographs

B : Vertical aerial photographs

C : Oblique aerial photographs

D : Vertical aerial photo-mosaics

Q :) Knowledge of surveying is significant for:

A : Laying underground pipe lines

B : Town planning

C : Laying of canals

D : All of these

Q :) A satellite station in triangulation is:

A : A ground station which sends signals to satellite

B : A ground station which receives signals from satellite

C : An eccentric station located at a large distance from the main station

D : A false station near the main station

Q :) Which of the following instruments is generally sued for base line measurements:

A : Chain

B : Metallic tape

C : Steel tape

D : Invar tape

Q :) Cross staff is an instrument used for:

A : Measuring approximate horizontal angles

B : Setting out right angles

C : Measuring bearing of the line

D : None of these

Q :) In linear measurement, the correction for sag is:

A : Always additive

B : Always subtractive

C : Always zero

D : Additive for "Steel tape" and subtractive "Metallic tape"

Q :) A 30-m steel tape was standardized at 20°C. The tape was used when the ambient temperature was 40°C. A 30-m length measured with the tape will actually be (taken coefficient of expansion of tape materials as 15×10^{-6})

A : 30.09 m

B : 30.009 m

C : 29.991 m

D : 29.91 m

Q :) Error due to bad ranging is:

A : Commutative positive

B : Commutative negative

C : Compensative

D : Never serious

Q :) The position of a point can be fixed
more accurately by :

A : Cross staff

B : Optical square

C : Oblique offsets

D : Perpendicular offsets

Q :) A metallic tape is of-

A : Invar

B : Limen

C : Cloth and wires

D : Steel

Q :) In a centered triangle the equations of condition are:

A : Four angle conditions

B : Three angle conditions and one side conditions

C : Four angle conditions and one side condition

D : Three angle conditions and two side conditions only

Q :) As per Is, the length of one link in a 30 metre chain should be :

A : 20 cm

B : 30 cm

C : 40 cm

D : 100 cm

Q :) A tape of length 'ℓ' and weight 'w' kg/m, is suspended at its ends with a pull o 'P' kg, the sag correction is:

A : $\dfrac{\ell^3 w^2}{24P^2}$

B : $\dfrac{\ell^2 w^3}{24P^2}$

C : $\dfrac{\ell^3 w^2}{24P^3}$

D : $\dfrac{\ell w^2}{24P}$

Q :) Which of the following angles can be setout with the help of a French cross staff?

A : 45° only

B : 90° only

C : Either 45° or 90°

D : Any angle

Q :) Assertion (A) : The base lines are usually much shorted than average length of the triangle sides.

Reason (R) : It is difficult and expensive to measure long base lines.

Select the correct answer.

A : Both A and R are true and R is the correct explanation

B : A is true but R is false

C : A is false but R is true

D : A and R both are false

Q :) The correction due to sag and pull are equalized by:

A : Normal equation

B : Normal pressure

C : Normal tension

D : All of these

Q :) The length of a ranging rod should be

A : 1.5 t 2.0 m

B : 2 to 3.0 m

C : 3 to 4.0 m

D : 2.5 to 4.5 m

Q :) The correction to be applied to each 30 meter chain length along θ° slope is ………..

A : 30 (sec θ -1) m

B : 30 (sin θ -1) m

C : 30 (cos θ -1) m

D : 30 (tan θ -1) m

Q :) Marking the end of chain length is an example of

A : Positive error

B : Negative error

C : Cumulative error

D : Compensating error

Q :) Which of the following used in measuring perpendicular offset?

A : Cross staff

B : Optical square

C : Steel tape

D : All of these

Q :) In compass survey, the dip of the needle at equator will be

A : Zero

B : 90º

C : 45º

D : None of these

Q :) Imaginary line joining the points of zero declination of the surface of earth is known as

A : Isogonic line

B : Isoclinic declination line

C : Magnetic declination line

D : Agonic line

Q :) Axis method of traverse correction is used when

A : The lengths are measured very accurately

B : The angle are measured very accurately

C : The percentage error in angles and lengths is same

D : Neither angles nor lengths are measured accurately

Q :) If the quadrant bearing of a line is S 35º W then the whole circle bearing of the line is

A : 325º

B : 145º

C : 215º

D : 125º

Q :) In the prismatic compass

A : The magnetic needle moves with the box

B : The line of sight does not move with the box

C : The magnetic needle and graduated circle is fixed to each other

D : The graduated circle is fixed to the box and the magnetic needle always remains in the N-S direction

Q :) The temporary adjustment of prismatic compass is

A : Centering

B : Adjustment of levels

C : Adjustment of needle

D : Adjustment of vanes

Q :) A well conditioned triangle do not have any angle less than

A : 20°

B : 30°

C : 45°

D : 60°

Q :) If the weight of an angle A is 3 and weight of angle B is 4, what will be the weight of (3A-B + 90º)

A : 1/7

B : 1

C : 4/13

D : 91

Q :) Read the following statements.

1. Dip of a magnetic needle is its inclination with the ground surface.

2. In the northern hemisphere, the north end of the magnetic needle is deflected downward.

3. In the southern hemisphere, the north end of the magnetic needle is deflected downward.

4. The amount of dip varies in different parts of the earth.

The correct statement are:

A : 1 and 2   B : 1 and 3

C : 3 and 4   D : 2 and 4

Q :) If an equation A + B = 55° has a weight of 3, then the weight of 180 – (A + B) is:

A : 3

B : 1/3

C : 9

D : 1/9

Q :) If "Fore bearing" of line is S 49º 52' E (assuming there is no local attraction), the 'Back bearing" of the lie will be:

A : S52º 49'E

B : S 49º 52'E

C : N49º 08'E

D : N49º 52'W

Q :) The horizontal angle between the true meridian and magnetic meridian at a place is known as:

A : Azimuth

B : Declination

C : Local attraction

D : Magnetic bearing

Q :) In surveying measurements, the bearing taken in clockwise direction w.r.t. magnetic north are referred as

A : Magnetic meridian

B : True meridian

C : Whole circle bearing

D : Reduced bearing

Q :) The closing error in a closed traverse is adjusted by:

A : Lemann's rule

B : Slide rule

C : Bowditch's rule

D : Simpson's rule

Q :) Rotation of a camera, at exposure, about the line of flight, is known as

A : Tip

B : Tilt

C : Swing

D : None of these

Q :) The standard meridian of India, is

A : 35⁰

B : $82\frac{1}{2}^0$

C : $67\frac{1}{2}^0$

D : 120⁰

Q :) The angular distance of a heavenly body from the Zenith is known as

A : Co-altitude

B : Zenith distance

C : (a) and (b) both

D : Azimuth

Q :) The motion of earth relative to the sun is in a plane incline at a angle of

A : 23°27'

B : 46°31'

C : 33°27'

D : 27°16'

Q :) The reference points on which a day's work is closed and from ehere levelling is continued the next day ar called as :

A : Temporary benchmarks

B : Arbitrary benchmarks

C : Permanent benchmarks

D : GTS benchmarks

Q :) The point at which both foresight and back sight are taken during the course of levelling is called as :

A : Intermediate site

B : Benchmark

C : Station

D : Change point

Q :) The curved surface which at every point is perpendicular to the direction of gravity at that point is known as

A : A level plane

B : A level surface

C : A horizontal surface

D : A vertical surface

Q :) 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 : May increase or decrease

Q :) If the R.L. of a B.M. is 100.00 m, the back sight is 1.215 m and the foresight is 1.870 m, the R.L. of the forward station is

A : 99.345

B : 101.215

C : 100.665

D : 101.870

Q :) Two consecutive readings in the levelling data are 1.445 m and 1.995 m. The first is a foresight and the second is a back sight. Then,

A : The rise from the first point to second point is 0.51 m.

B : The fall from the first point to second point is 0.51 m

C : The two readings are taken to the same point from two instrument stations

D : The level difference between the two points is 3.410

Q :) Dumpy level is most suitable when

A : The instrument is to be shifted frequently

B : Fly leveling is being done over long distance

C : Many readings are to be taken from a sight setting of the instrument

D : All of the above

Q :) The curvature and refraction corrections in the levelling are………. To the observed reading.

A : Both additive

B : Both subtractive

C : Subtractive and additive respectively

D : Additive and subtractive respectively

Q :) "The following sights are taken on a "Turning point" :

A : Fore sight only

B : Back sight only

C : Fore sight and back sight

D : Fore sight and intermediate sight

Q :) The rise and fall method for obtaining the reduced levels of points provides is check on:

A : Intermediate sight and back sight

B : Only back sight

C : Fore sight, back sight and intermediate sight

D : Only foresight

Q :) Two bubble tube A and B are filled with water and alcohol respectively. Which of the following is the correct statement?

A : Sensitivity of B is more than A

B : Sensitivity of A is more than B

C : Sensitivity of A and B are same

D : All of these

Q :) Two points C and D are on opposite banks of a river. The following reciprocal levels are taken with one level

Fine the true statements:

Level at	Stiff reading on	
	C	D
C	2.156 m	3.568 m
D	1.968 m	3.262 m

A : D is 1.535 m higher than C

B : C is 1.353 m higher than D

C : C is 1.412 m higher than D

D : C is 1.294 m higher than D

Q :) The imaginary line joining the Centre of diaphragm and optical Centre of the objective of a telescope is called:

A : Axis of telescope

B : Line of collimation

C : Line of sight

D : None of these

Q :) In levelling work, If $\sum$ fall = zero then ground is:

A : Continuously rising

B : Continuously falling

C : Undulating

D : All of the above

Q :) The least count of an ordinary levelly staff is:

A : 0.05 m

B : 0.001 m

C : 0.005 cm

D : 0.005 m

Q :) The number of horizontal cross hairs in a stadia diaphragm is

A : 1

B : 2

C : 3

D : 4

Q :) The sensitiveness of a level tube decrease if………

A : Radius of curvature of its 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 :) Which of the following, closely represents the shape of the Earth?

A : Spheroid

B : Ellipsoid

C : Oblate spheroid

D : Prolate spheroid

Q :) The method of finding out the difference in elevation between two points for eliminating the effect of curvature and refraction, is

A : Reciprocal levelling

B : Precise levelling

C : Differential levelling

D : Flying levelling

Q :) An internal focusing of telescope is focused by the movement of :

A : Convex lens

B : Concave lens

C : Plano-convex

D : Objective class

Q :) The cross hairs in the surveying telescope are placed

A : Midway between eye piece and objective hens

B : Much closer to the eye-piece than to the objective lens

C : Much farther to the eye-piece than to the objective lens

D : Anywhere between eye-piece and objective lens

Q :) A vertical photograph was taken at an altitude of 1500 m above mean sea level. If the focal length of the cameral is 20 m, the scale of photograph for a terrain lying at an elevation of 500 m is

A : 1 : 50

B : 1 : 100

C : 1 : 1000

D : 1 : 25

Q :) A planimeter is used for mechanically measuring

A : Altitude of a location above mean sea level

B : Inclination of a slope

C : Pressure at a location

D : Area of plane map

Q :) The apparatus required for measuring base line length using rigid bars, is:

A : Colby apparatus

B : Wheeler's base line apparatus

C : Both of the above

D : None of the above

Q :) A total station can measure

A : Only distances electronically

B : Only horizontal angles accurately

C : Horizontal and vertical angles & distances

D : Vertical angles & distance only

Q :) In plane tabling the instrument used to measure horizontal and vertical distance directly, is known as ……….

A : Plane alidade

B : Telescopic alidade

C : Tacheometer

D : Clinometer

Q :) Which method would you apply for locating inaccessible points?

A : Method of radiation

B : Method of intersection

C : Both of the above

D : None of these

Q :) Intersection method of detailed plotting is most suitable for:

A : Forests

B : Urban area

C : Hilly area

D : Plains

Q :) In plane tabling failure of fix occurs when :

A : The plane table is inside the great triangle

B : The plane table is inside the great circle

C : The plane table is outside the great circle

D : The plane table is on the great circle

Q :) The accuracy with which the instrument station can be established in plane table survey is known as the:

A : Strength of accuracy

B : Strength of solution

C : Strength of fix

D : None of these

Q :) The method of plane tabling commonly used for establishing the instrument station is:

A : Radiation method

B : Intersection method

C : Resection method

D : Traversing method

Q :) In plane table surveying, the operation which must be carried out is:

A : Resection

B : Orientation

C : Intersection

D : Radiation

Q :) The three point problem can be solved by :

A L Tracing paper method

B : Bessel's method

C : Lehman's method

D : All of these

Q :) Principle of plane tabling is:

A : Orientation

B : Parallelism

C : Levelling

D : Three point

Q :) The quick and most accurate method to solve three point problem is resection type of plane tabling it:

A : Tracing paper method

B : Graphical method

C : Trial and error method

D : Both (1) & (2)

Q :) While surveying a [plot of land by plane tabling, the field observations

A : And plotting proceed simultaneously

B : And plotting do not proceed simultaneously

C : Are recorded in field book to be plotted later

D : None of these

Q :) The operation of revolving a plane table about its vertical axis so that all the lines on the sheet become parallel to the corresponding lines on the round is known as

A : Levelling

B : Centering

C : Orientation

D : Setting

Q :) Orientation of plane-table, by solving two-point problem, is adopted only when

A : Saving of time is a main factor

B : Better accuracy is a main factor

C : Given points are inaccessible

D : None of these

Q :) While working on a plane-table, the correct rule is

A : Draw continuous line from all instrument stations

B : Draw short rays sufficient to contain the points sought

C : Intersection should be obtained by actually drawing the second ray

D : None of these

Q :) Which of the following instrument is not used for plane table survey?

A : Plumb bob

B : Theodolite

C : Spirit level

D : Alidade

Q :) The line joining the points having the same elevation:

A : Contour surface

B : Contour line

C : Contour interval

D : Contour gradient

Q :) The slope between any two points on a contour map depends upon:

A : Contour interval only

B : Horizontal equivalent only

C : Contour interval and horizontal equivalent both

D : None of these

Q :) Select the correct statement:

A : Contour interval on any map is not kept constant

B : Direct method of contouring is cheaper than indirect method

C : Indivisibility of points on a contour map can be ascertained

D : Slope of a hill cannot be determined with the help of contours

Q :) An imaginary line lying on the ground and maintaining a constant slope is known as :

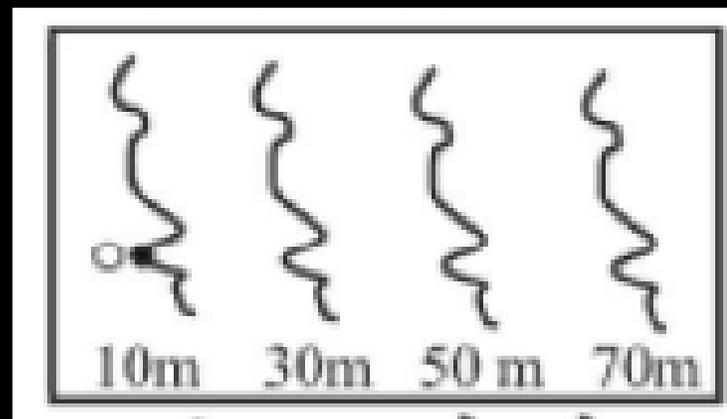**A : Contour line**

B : Horizontal equivalent

C : Contour interval

D : Grade contour

Q :) Consider the following figure, which is an extract from a contour map (Scale = 1 : 20,000) of an area. AN alignment of a road at a ruling gradient of 4% is to be fixed from the point O and beyond. What should be the radius of the arc with O as the centre to get the point of alignment of the next contour on the map?

A : 0.025 cm

B : 0.25 cm

C : 2.5 cm

D : 5.0 cm

10m   30m   50 m   70m

Q :) Contour lines of different elevation can unite to form one the line only in the case of

A : Plane ground

B : Cave

C : Vertical cliff

D : Valley

Q :) When the contour lines having the same contour interval are father apart, it shows a:

A : Plane surface

B : Very steep slope

C : Gentle slope

D : A valley

Q :) Theory of least squares can be represented as:

A : $\sum e^2$ = 0

B : $\sum We\delta e$ = 0

C : $\sum We^2\delta e$ = Minimum

D : $\sum 2We\delta e$ = Minimum

Where

W = weight of an observation

E = residual error

Q :) For hilly region the ideal method pf contouring is

A : Direct method

B : Method of squares

C : Cross section method

D : Radial line method

Q :) The Bowditch method of adjustment of traverse is based on the assumption that:

A : $e_1 \propto \sqrt{\ell}$ and $e_2 \propto \dfrac{1}{\sqrt{\ell}}$

B : $e_1 \propto \sqrt{\ell}$ and $e_2 \propto \sqrt{\ell}$

C : $e_1 \propto \dfrac{1}{\sqrt{\ell}}$ and $e_2 \propto \sqrt{\ell}$

D : $e_1 \propto \dfrac{1}{\sqrt{\ell}}$ and $e_2 \propto \dfrac{1}{\sqrt{\ell}}$

Where e_1 and e_2 are errors in linear and angular measurement respectively and l is the length of line:

Q :) Match the List-I (tool/instrument) with List-II (method of surveying) and select the correct answer using the codes given in lists:

List-I (Tool / instrument)	List-II (Method of surveying)
A. Alidade	1. Chain surveying
B. Arrow	2. Levelling
C. Bubble tube	3. Plane table surveying
D. Stadia hair	4. Theodolite surveying

A : 3, 2, 1, 4

B : 2, 4, 3, 1

C : 1, 2, 4, 3

D : 3, 1, 2, 4

Q :) The substance bar can be used to measure:

A : Horizontal angle

B : Horizontal distance

C : Vertical angle

D : Vertical distance

Q :) In a closed loop traverse of 1 km total length the closing errors in departure and latitude are 0.3 m and 0.4 m. respectively. The relative precision of this traverse will be

A : 1 : 5000

B : 1 : 4000

C : 1 : 3000

D : 1 : 2000

Q :) Analectic lens provided in a tacheometer is

A : Concave lens

B : Convex lens

C : Plano convex lens

D : Plane lens

Q :) The tangential method of tacheometery is

A : Slower than stadia hair method

B : Faster than stadia hair method

C : Preferred as involves less computations to het reduced distance

D : Preferred as chances of operational error are less compared to stadia

Q :) It is the axis about which the instrument can be rotated in a horizontal plane.

A : Trunnion axis

B : Horizontal axis

C : Axis of the telescope

D : Vertical axis

Q :) While using total station, the vertical angle is usually measured as a zenith angle

A : 0º vertically up, 90º horizontal and 180º vertically down

B : 0º vertically down, 90º horizontal and 180º vertically up

C : 0º horizontal, 90º vertical down and 180º vertically up

D : None of these