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Q : 76) Consider the following statements:

Ultrasonic pulse velocity test to measure the strength of concrete is

- 1. Used to measure the strength of wet concrete.**
- 2. used to obtain estimate of concrete strength of finished concrete elements.**
- 3. a destructive test.**
- 4. a non-destructive test**

Which of these statements is/are correct?

A: 2 only

B: 2 and 4

C: 1 and 3

D: 3 and 4

Q : 77) In the case of a continuous RC beam, in order to obtain the maximum positive span moment, where should the live load be placed?

A: On all the spans

B: On alternate spans starting from the left

C: On spans adjacent to the spans under consideration

D: On the span plus alternate spans

Q : 78) For maximum sagging bending moment at support in a continuous RC beam, live load should be placed on

A: Spans adjacent to the support plus alternate spans

B: All the spans except the spans adjacent to the

C: Spans next to the adjacent spans of the support plus alternate spans

D: Spans adjacent to supports only

Q : 79) The distance between theoretical cut-off point and actual cut-off point in respect of the curtailment of reinforcement of reinforced concrete beams should not be less than

A: Development length

B: $12 \times$ diameter of bar or effective depth whichever is greater

C: $24 \times$ diameter of bar or effective depth whichever is greater

D: $30 \times$ diameter of bar or effective depth whichever is greater

Q : 80) Lap length of reinforcement in compression shall not be less than

A: 30ϕ

B: 24ϕ

C: 20ϕ

D: 15ϕ

Q : 81) Minimum shear reinforcement in beams is provided in the form of stirrups

A: To resist extra shear force due to live load

B: To resist the effect of shrinkage of concrete

C: To resist principal tension

D: To resist shear cracks at the bottom of beam

Q : 82) Temperature and shrinkage steel is provided in reinforced concrete slabs because

A: It occupies larger area

B: Its thickness is less

C: It is a main structural element

D: It is a flexural member

Q : 83) How is the depth of footing for an isolated column governed?

- 1. By maximum bending moment**
- 2. By shear force**
- 3. By punching shear**

Select the correct answer using the codes given below:

A: 2 and 3 only

B: 1 and 3 only

C: 1 and 3 only

D: 1, 2 and 3

Q : 84) If the nominal shear stress (t_v) at a section does not exceed the permissible shear stress (T_v)

A: Minimum shear reinforcement is still provided

B: Shear reinforcement is provided to resist the nominal shear stress

C: No shear reinforcement is provided

D: Shear reinforcement is provided for the difference of the two

Q : 85) An RC structural member rectangular in cross section of width b and depth D is subjected to a combined action of bending moment M and torsional moment T . The longitudinal reinforcement shall be designed for a moment M_e given by

$$\text{A: } M_e = M + \frac{T(1 + \frac{D}{b})}{1.7}$$

$$\text{B: } M_e = M + \frac{T(1 - \frac{D}{b})}{1.7}$$

$$\text{C: } M_e = \frac{T(1 + \frac{D}{b})}{1.7}$$

$$\text{D: } M_e = \frac{T(1 - \frac{D}{b})}{1.7}$$

Q : 86) Cross sectional area of metal core in composite column should not be more than

- A: 4%**
- B: 8%**
- C: 16%**
- D: 20%**

Q : 87) A T-beam behaves as a rectangular beam of width equal to its flange if its neutral axis

A: Coincides with centroid of reinforcement

B: Coincides with centroid of T-section

C: Remains within the flange

D: Remains in the web

Q : 88) The value of ultimate creep coefficient for concrete :

A: Increases with age of loading

B: Decreases with age of loading

C: Remains constant

D: Is taken as 0.0003

Q : 89) Diagonal tension reinforcement is provided as

A: Longitudinal bars

B: Bent up bars

C: Helical reinforcement

D: 90 degree bent at end

Q : 90) The length of straight portion of a bar beyond the end of the hook should be at least

A: Twice the diameter

B: Thrice the diameter

C: Four times the diameter

D: Sever times the diameter

Q : 91) The diameter of transverse reinforcement of columns should be equal to one fourth of the diameter of the main steel rods but not less than

A: 4 mm

B: 5 mm

C: 6 mm

D: 7 cm



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Q : 1) The instrument attached to the wheel of a vehicle to measure the distance traveled is:

A : Pedometer

B : Odometer

C : Speedometer

D : Pass meter

Q : 2) A plan drawn to a scale of 1:4000 was measured by a scale 1:5000. The % error in the length measured will be:

A: 10

B: 1000

C: 25

D: 1.25

Q : 3) Which of the following types of survey is NOT based on the object of survey?

A: Engineering survey

B: Geological survey

C: Military survey

D: Astronomical survey

Q : 4) 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 : 5) 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 : 6) Geodetic survey of India was done, using:

A: Triangulation

B: Traversing

C: Trilateration

D: None of the above

Q : 7) A vernier is made using a main scale of one meter to read mm. If the vernier scale is divided into cm divisions, the vernier will have

A: 10 divisions for 9 main scale divisions

B: 11 divisions for 10 main scale divisions

C: 20 divisions for 19 main scale divisions

D: 21 divisions for 20 main scale divisions

Q : 8) What is the difference between two measured values of same quantity in surveying?

A: Variation

B: Discrepancy

C: International error

D: Balancing error

Q : 9) A surveyor measured the distance between two points in the plan, drawn to a scale of $1 \text{ cm} = 40 \text{ m}$ and result was 235 m. Later, however, he discovered that he used a scale of $1 \text{ cm} = 20 \text{ m}$. Find the true distance between the points.

A: 554 m

B: 470 m

C: 117.5 m

D: 235 m

Q : 10) Which of the following instruments is used for measurement of bases in India by the survey of India?

A: Tellurometer

B: Jaderin's apparatus

C: Colby apparatus

D: Hunter's short base

Q : 11) The total length of eight links in a 'Revenue chain' is

A: 16.5 feet

B: 33 feet

C: 26 feet

D: 13 feet

Q : 12) While applying correction due to sag in a chain or tape survey, which of the following shapes is assumed to be followed

A: Circular

B: Parabolic

C: Hyperbolic

D: Quadratic

Q : 13) Triangulation stations should be

A: In commanding positions

B: All of three mentioned here

C: Intervisible

D: Easily accessible

Q : 14) Survey of a piece of land is being carried out. Out of the following errors, which one may be either cumulating positive or cumulating negative error

A: Sag

B: Erroneous length of chain

C: Bad ranging

D: Bad straightening

Q : 15) A tape of length ' ℓ ' and weight ' w ' kg/m, is suspended at its ends with a pull of ' P ' kg, the sag correction is:

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

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

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

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

Q : 16) As per Indian standard specification, the length of one link in 30 metre chain is

A: 20 cm

B: 30 cm

C: 40 cm

D: 10 cm

Q : 17) A tie line in a chain surveying

A: Checks the accuracy of the framework

B: Enables the surveyor to locate the interior details which are far away from the main chain lines

C: Fixes up the directions of all other lines

D: All of the these

Q : 18) An average length of a pace is:

A: 60 cm

B: 80 cm

C: 100 cm

D: 120 cm

Q : 19) The ranging operation in survey is a process of:

A: Reconnaissance

B: Judging the distance

C: Establishing intermediate points between terminals

D: Determination of slope

Q : 20) Choose the correct combination for base line measurement in triangulation.

A: A-iii, B-iv, C-ii, D-i

B: A-ii, B-i, C-iv, D-iii

C: A-iv, B-iii, C-i, D-ii

D: A-i, B-iii, C-iv, D-ii

A. Standardized tapes	i. Short base in plain ground
B. Hunter's short base	ii. Fairly long distances
C. Tacheometric base	iii. Used for measuring 80 m long base
D. EDM	iv. Undulating ground for small bases

Q : 21) 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 : 22) 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 statements are:

A: 1 and 2

B: 1 and 3

C: 3 and 4

D: 2 and 4

Q : 23) The horizontal angle between the true meridian and magnetic meridian is known as:

A: Declination

B: Dip

C: Bearing

D: Local attraction

Q : 24) In compass traverse, the fore bearing depends on

A: The extent of area to be surveyed

B: The direction of true north

C: The direction of progress of survey

D: The direction of magnetic north

Q : 25) The latitude and departure of a line Ab are +78m and -45.1 m respectively. The whole circle bearing of the line AB is

A: 30°

B: 150°

C: 210°

D: 330°

Q : 26) The box of prismatic compass is made of:

A: Aluminum

B: Brass

C: Steel

D: Iron

Q : 27) In triangulation, in order to control the accumulation of errors of length and azimuth subsidiary bases are selected. At certain stations, the astronomical observations for azimuth and longitude are also made. These stations are called

A: Transportation stations

B: Bowditch stations

C: Universe stations

D: Laplace stations

Q : 28) When the area to be surveyed is large having undulating grounds and higher accuracy is not required, then the best method suitable for surveying will be

A: Chain survey

B: Compass survey

C: Plane table survey

D: Theodolite survey

Q : 29) According to Bowditch's rule correction to latitude or departure of any side is equal to:

A: Total error in latitude or departure X length of that side/perimeter of traverse

B: Total error in latitude or departure X perimeter of traverse/length of that side

C: Total error in latitude/perimeter of traverse

D: None of these

Q : 30) Analectic lens is fitted with

A: External focusing telescope

B: Internal focusing telescope

C: Astronomical telescope

D: Ordinary telescope

Q : 31) Hypsometry is a method of

A: Surveying of water bodies

B: Determining elevations based on the boiling point of liquids

C: Determining elevations based on the atmospheric pressure

D: Finding temperatures at different heights

Q : 32) 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 : 33) Which of the following errors can be eliminated by taking the mean of both face observations-

A: Errors due to eccentricity of verniers

B: Error due to imperfect adjustment of plate levels

C: Error due to imperfect graduation

D: Error due to line of collimation not being perpendicular to the horizontal axis

Q : 34) Reciprocal leveling eliminate the effect of:

- 1. Errors due to atmospheric refraction**
- 2. Errors due to earth's curvature**
- 3. Errors in staff reading**
- 4. Errors due to collimation line**

Which of these statements are correct?

A: 1 and 2

B: 2 and 4

C: 1, 2 and 3

D: 1, 2 and 4

Q : 35) process of taking levels on each side of a main line at right angles to that line is called.....

A: Differential levelling

B: Cross-section levelling

C: Profile levelling

D: Reciprocal levelling

Q : 36) The expression for sensitivity of the bubble tube (α) can be taken as, where

N = No. of divisions

S = Net staff reading

d = Distance

R = Radius of curvature

L = Length of one division

A: $\alpha = \frac{s}{nd} \times 206265$ seconds

C: $\alpha = \frac{nlD}{R}$ radians

B: $\alpha = \frac{d}{ns} \times 206265$ seconds

D: $\alpha = \frac{s}{nR} \cdot \frac{l}{D}$

Q : 37) Two points C and D are on opposite banks of a river. The following reciprocal levels are taken with one level.

Find the true statements:

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

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

Q : 38) Which one of the following gives the correct distance between the light house and a ship, when the lighthouse whose height 100 m is visible just above the horizon from the ship?

A: 3068 km

B: 36.50 km

C: 38.54 km

D: 60.54 km

Q : 39) The arithmetic check for the computation of RL by 'Rise and Fall' method is given by:

A: $\Sigma FS - \Sigma BS = \text{RL of last station point} - \text{RL of first station point} = \Sigma \text{fall} - \Sigma \text{Rise}$

B: $\Sigma BS - \Sigma FS = \text{RL of first station point} - \text{RL of last station point} = \Sigma \text{Rise} - \Sigma \text{Fall}$

C: $\Sigma BS - \Sigma FS = \text{RL of last station point} - \text{RL of first station point} = \Sigma \text{Eise} - \Sigma \text{Fall}$

D: $\Sigma BS - \Sigma FS = \text{RL of first station point} - \text{RL of last station point} = \Sigma \text{fall} - \Sigma \text{Rise}$

Q : 40) Which of the following types of levelling cannot be done with a dumpy level?

A: Differential levelling

B: Reciprocal levelling

C: Trigonometric levelling

D: Profile levelling

Q : 41) Least count of a levelling staff is-

A: 1 cm

B: 5 cm

C: 1 mm

D: None of the above

Q : 42) In levelling, the correction for curvature (C_c) is given by (where D is the distance and R is the radius of the earth):

A: $\frac{D^2}{2R}$

B: $\frac{D}{2R}$

C: $\frac{D^2}{R}$

D: $\frac{2D^2}{R}$

Q : 43) In levelling, mistakes in rod handing are counted under the _____ error.

A: Natural

B: Personal

C: Natural as well is instrumental

D: Instrumental

Q : 44) The combined correction of curvature and refraction for a distance of 1400 m is:

A: 0.153 m

B: 0.132 m

C: 0.094 m

D: 0.021 m

Q : 45) Which of following errors is not eliminated by the method of repetition for horizontal angle measurement?

A: Error due to eccentricity of verniers

B: Error due to displacement of station signals

C: Error due to wrong adjustments of line and trunnion axis

D: Error due to inaccurate graduation

Q : 46) Which of the following is **WRONGLY stated application of triangulation survey?**

A: Assisting in the determination of mean sea level

B: Determining accurate locations for setting out of civil engineering works

C: Establishing accurate control for photogram metric surveys for large areas

D: Establishing accurate control for plane and geodetic surveys covering large areas

Q : 47) The following set of reading taken with a level: 1.565, 0.985, 1.235, 2.545, 3.455, 1.875, 1.985, 0.865 and 1.285. If the instrument was shifted after the 2_{nd} and the 5th reading, then the entries in the foresight column would be-

A: 0.985, 3.455 and 1.285

B: 0.985, 1.875 and 1.285

C: 1.235, 1.985 and 1.285

D: 1.235, 1.985 and 0.865

Q : 48) Flow measurement with Prandtl-pitot tube showed that tip reading varies only across the flow while the side opening varied only along the flow. The type of flow is

A: Uniform irrotational

B: Uniform rotational

C: Non uniform irrotational

D: Non uniform rotational

Q : 49) Tranquil flow must always occur

A: Above normal depth

B: Below normal depth

C: Above critical depth

D: Below critical depth

Q : 50) Match the following lists:

Where F_r is initial Froude number. Select the correct answer using the codes given below.

A: 3, 4, 1, 2

B: 4, 3, 2, 1

C: 4, 3, 1, 2

D: 3, 4, 2, 1

List-I	List-II
A. Strong hydraulic jump	1. $F_r < 1.70$
B. Weak hydraulic jump	2. $4.5 < F_r < 9.0$
C. Undular hydraulic jump	3. $F_r > 9.0$
D. Steady hydraulic jump	4. $1.7 < F_r < 2.5$

Q : 51) For a shooting flow, the Froude number is

A: Zero

B: Less than 1

C: One

D: Greater than 1

Q : 52) The discharge through a channel of rectangular section will be maximum if:

A: Its depth is twice the breadth

B: Its breadth is twice the depth

C: Its depth is thrice the breadth

D: Its breadth is thrice the depth

Q : 53) If relationship between discharge and head for a measuring equipment is given by $Q = kN^{7/2}$, and error in the head measurement is 2.5%; then the error in discharge measurement would be

A: 9.25%

B: 7.50%

C: 4.75%

D: 8.75%

Q : 54) Flow through a venturi flume is maximum when the depth at the throat is

A: One-fourth

B: One-third

C: Two-third

D: Half

Q : 55) The top width and depth of flow in a rectangular channel were measured as 4m and 1m respectively. The measured velocities on the center line at the water surface, 0.2m and 0.8m below the surface are 0.7m/s, 0.8m/s, 0.6m/s respectively. Using two point method of velocity measurement, the discharge (in m^3/s) in a channel is

A: 1.4

B: 1.2

C: 1.0

D: 0.8

Q : 56) A mild-slope channel is followed by a steep sloped channel. The profiles of gradually varied flow in the channel are

A: M3, S2

B: M3, S3

C: M2, S2

D: M2, S1

Q : 57) Match list-I (devices) with List-II (uses) and select the correct answer using codes the given lists:

A: 1, 2, 4, 3

B: 2, 1, 3, 4

C: 2, 1, 4, 3

D: 4, 1, 3, 2

List-I (Devices)	List-II (Uses)
A. Pitot tube	1. Measuring pressure in a pipe
B. Manometer	2. Measuring velocity of flow in a pipe
C. Venturi meter	3. Measuring air and gas velocity
D. Anemometer	4. Measuring discharge in a pipe

Q : 58) A laser-doppler anemometer is a device to measure

A: Shear stress at a boundary

B: Surface tension of a fluid

C: The turbulent velocity fluctuation in a flow

D: Drag force on an aerofoil

Q : 59) The velocity distribution for a two dimensional flow is given by $u = ax$ and $v = ay$. Determine the equation of the streamline passing through the points (3, 1).

A: $3x + y = 0$

B: $x - y = 3$

C: $x - y = 1$

D: $x + 3y = 0$

Q : 60) Shear strain rate is given by

A: $\frac{1}{2} \left(\frac{\partial u}{\partial x} + \frac{\partial v}{\partial y} \right)$

B: $\frac{1}{2} \left(\frac{\partial v}{\partial x} + \frac{\partial u}{\partial y} \right)$

C: $\frac{1}{2} \frac{\partial u}{\partial x} + \frac{\partial v}{\partial y}$

D: $\frac{1}{2} \frac{\partial v}{\partial x} + \frac{\partial u}{\partial y}$

Q : 61) Coefficients of velocity, contraction and discharge arranged in increasing order of value are

A: C_v , C_c , C_d

B: C_d , C_c , C_v

C: C_v , C_d , C_c

D: C_c , C_d , C_v

Q : 62) Water having kinematic viscosity of 0.01 stokes flow at a velocity of 2 m/sec in pipe of 15 cm diameter. For dynamic similarity, the velocity of oil kinematic viscosity 0.03 stoke in a pipe of same diameter will be

A: 0.33 m/sec

B: 0.66 m/sec

C: 2 m/sec

D: 6 m/sec

Q : 63) What will be the value of convective acceleration and local acceleration for a flow water in uniform straight pipe of constant diameter with unsteady flow condition?

A: Convective acceleration = 0,

Local acceleration = 0

B: Convective acceleration = 0,

Local acceleration $\neq 0$

C: Convective acceleration $\neq 0$

Local acceleration $\neq 0$

D: Convective acceleration $\neq 0$,

Local acceleration = 0

Q : 64) The flow of a liquid at constant rate in a uniformly tapering pipe is:

A: Steady, uniform flow

B: Unsteady, uniform flow

C: Steady, non-uniform flow

D: Unsteady, non-uniform flow

Q : 65) The dividing streamline for a uniform flow superimposed over a two-dimensional droplet is

A: A straight line

B: A circle

C: A sphere

D: An ellipse

Q : 66) In a steady radial flow into an intake, the velocity is found to vary as $(1/r^2)$, where r is the radial distance. The acceleration of the flow is proportional to

A: $\frac{1}{r^5}$

B: $\frac{1}{r^3}$

C: $\frac{1}{r^4}$

D: $\frac{1}{r}$

Q : 67) A point in a compressible flow, where the velocity of fluid is zero, is called:

A: Critical point

B: Vena contract

C: Stagnation point

D: None of the above

Q : 68) A Prandtl type pitot tube to measure the

A: Velocity of flow at the required point in a pipe

B: Pressure difference between two points in a pipe

C: Total pressure of liquid flowing in a pipe

D: Discharge through a pipe

Q : 69) The stagnation pressure is the sum of

A: Vacuum pressure and static pressure

B: Static pressure and dynamic pressure

C: Vacuum pressure and dynamic pressure

D: Absolute pressure and dynamic pressure

Q : 70) Path-lines refer to the motion of identified fluid particles of elements and therefore constitute feature of the-

A: Lagrangian approach

B: Rayleigh's approach

C: Eulerian approach

D: None of the above

Q : 71) A steady-non-uniform flow is through

A: A tapering pipe at a constant rate

B: A tapering pipe at either increasing or decreasing rate

C: A long pipe at increasing rate

D: A long pipe at decreasing rate

Q : 72) A velocity potential exists

A: Whenever the real fluid flow exists

B: When the flow is real and rotational

C: When the flow satisfies the conditions of irrotational motion

D: When the flow satisfies the equation of continuity

Q : 73) For an ideal and steady flow, “the total energy of a fluid at a point is constant” is the statement of

A: Euler’s equation

B: Pascal’s law

C: Navier-stokes equation

D: Bernoulli’s theorem

Q : 74) In navier-stroke equation-

A: No force is neglected

B: Only force of compressibility is neglected

C: Both force of compressibility and force of turbulence are neglected

D: Force of compressibility, turbulence and velocity are neglected

Q : 75) In a “Free-vortex”, velocity potential line (ϕ) is a function of

A: Angle

B: Radius

C: Angle and radius

D: Velocity

Q : 76) In an unsteady flow:

A: The velocity changes in magnitude

B: The velocity changes in direction

C: The velocity changes in both magnitude and direction

D: The velocity changes in magnitude or direction or both with time

Q : 77) Rotating fluid in washing machine is example of

A: Free vortex

B: Forced vortex

C: Irrotational flow

D: Uniform flow

Q : 78) Which factor does not affect the drag force acting on a body?

A: Density of the fluid

B: Velocity of the body

C: Projected area of then body

D: Density of the body

Q : 79) If $\frac{dp}{dx}$ is the pressure gradient and $\frac{dv}{dx}$ the velocity gradient in a fluid flow, then the separation of boundary layer occurs the conditions are:

A: $\frac{dp}{dx} < 0; \frac{dv}{dx} > 0$

B: $\frac{dp}{dx} < 0; \frac{dv}{dx} < 0$

C: $\frac{dp}{dx} > 0; \frac{dv}{dx} > 0$

D: $\frac{dp}{dx} > 0; \frac{dv}{dx} < 0$

Q : 80) Separation of boundary layer takes place in case of

A: Negative pressure gradient

B: Positive pressure gradient

C: Zero pressure gradient

D: Hydraulic jump

Q : 81) For hydrodynamically rough boundary with usual notation:

A: $\frac{K}{\delta'} > 6.0$

B: $\frac{K}{\delta'} = 6.0$

C: $\frac{K}{\delta'} > 0.25$

D: $0.25 < \frac{K}{\delta'} < 6.0$

Q : 82) In a laminar boundary layer over a flat plate, the growth of the boundary layer with distance x from leading ledge is given by δ / x is proportional to Reynolds number (Re_x) as

A: $Re_x^{1/2}$

B: $Re_x^{-1/2}$

C: $Re_x^{1/5}$

D: $Re_x^{-1/5}$



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Q : 1) Which of the following soil types is suitable for sprinkler irrigation?

A : When land is steep and soil is easily erodible

B : when the crops are deeply rooted

C : when soil of low permeability is used

D : when water table is very low

Q : 2) Which is NOT a method of controlled flooding in irrigation methods?

A : Contour

B : Check basin

C : Ring basin

D : Border strip

Q : 3) Which of the following hydraulic jumps usually develops in barrages and canal head regulators?

- (a) Weak and/or oscillating type**
- (b) Undular**
- (c) Strong**
- (d) Steady**

Q : 4) For effective control of silt energy into the canal, the sill of the head regulator should be

- (a) below the sill of the under sluices**
- (b) Above the sill of the under sluices**
- (c) At the same level as the sill of under sluices**
- (d) At the maximum flood level**

Q : 5) Silt excludes are provided

- (a) near the canal head regulator**
- (b) at the lowest portion of the dam**
- (c) near the afflux bunch**
- (d) below the spillway**

Q : 6) An outlet which maintains a constant discharge irrespective of fluctuation in the water levels of the supplying channel or water course, is known as

- (a) Non-modular outlet**
- (b) Flexible outlet**
- (c) Rigid module**
- (d) All of the above**

Q : 7) The Purpose of cross regulator in a canal is-

- (a) To regulate water supply in the off-taking channel**
- (b) To head up water of adequate supply into the off-taking channel**
- (c) To regulate water supply in the main channel**
- (d) To regulate excessive flood water**

Q : 8) Vertical drop fall is satisfactory for a height upto

- (a) 1.5 m**
- (b) 5.0 m**
- (c) 0.5 m**
- (d) 3.5 m**

Q : 9) A deflecting groyne in a river is

- (a) inclined towards upstream**
- (b) inclined towards downstream**
- (c) perpendicular to the bank**
- (d) none of these**

- Q : 10) A repelling groyne in a river is**
- (a) inclined towards downstream at 30°**
 - (b) inclined towards upstream at 30°**
 - (c) perpendicular to the bank**
 - (d) none of these**

Q : 11) A divide wall is provided:

- (a) at right angle to the axis of weir**
- (b) parallel to the axis of weir and upstream of it**
- (c) parallel to the axis of weir and downstream of it**
- (d) at an inclination of 45° to the axis of weir**

Q : 12) Which of the following is a type of semi-modular outlet?

- (a) Submerged pipe outlet**
- (b) Open flume outlet**
- (c) Both (b) and (d)**
- (d) Kennedy's Gauge outlet**

Q : 13) The width of launching apron is normally equal to
OR

If D is the depth of US pile the horizontal length of launching apron is generally taken as

- (a) $1.5D$**
- (b) $0.9 D$**
- (c) $2.0 D$**
- (d) $2.8 D$**

Q : 14) The device used for removing excess sediment from entering the canal at its head regulator is called

- (a) Sediment ejector**
- (b) Sluice gate**
- (c) Sediment extractor**
- (d) Cross regulator**

Q : 15) An Montague-type fall?

- (a) a straight glacis is provided**
- (b) a circular glacis is provided**
- (c) a parabolic glacis is provided**
- (d) No glacis is provided**

Q : 16) If the channel index at an irrigation outlet is $5/3$, 'setting' of an orifice type outlet in order to have proportionality is:

- (a) 0.30**
- (b) 0.16**
- (c) 0.62**
- (d) 0.48**

Q : 17) According to Kennedy, non-silting and non-scouring velocity is called:

- (a) Optimal velocity**
- (b) Critical velocity**
- (c) Mean velocity**
- (d) Average velocity**

Q : 18) The rise in the maximum flood level of the to its river upstream of the weir due construction is termed as

- (a) afflux**
- (b) Retrogression**
- (c) Waterway**
- (d) freeboard**

Q : 19) The Inglis formula discharge is normally suited for:

- (a) Madras catchments**
- (b) former Bombay catchments**
- (c) old Hyderabad catchments**
- (d) American catchments**

- Q : 20) A fish ladder is provided in a canal project to:**
- (a) catch the fish for commercial purposes**
 - (b) enable the fish to move freely and safely in the river**
 - (c) serve the same purpose as canal ladder**
 - (d) catch the fish in bulk for breeding purpose**

Q : 21) The gross commanded area for a distributory area is 10,000 hectare, 75% of which can be irrigated. The intensity of irrigation for the Rabi season is 60%. If the average duty at the head of the distributory is 2,500 hectares per cumec for the Rabi season, determine the discharge required at the head of distributory from average demand consideration.

- (a) 1.8 cumec**
- (b) 5 cumec**
- (c) 10 cumec**
- (d) 25 cumec**

Q : 22) According to Khosla, the exit gradient of surface flow

- (a) Depends upon the b/d ratio**
- (b) Is independent of the depths of d/s cut off wal**
- (c) Is independent of the b/d ratio**
- (d) None of these**

Q : 23) Bypassing the canal below the drainage is

- (a) Super passage**
- (b) Aqueduct**
- (c) Level crossing**
- (d) None of the above**

Q : 24) Aggrading rivers are

- (a) silting rivers**
- (b) scouring rivers**
- (c) rivers in regime**
- (d) meandering rivers**

Q : 25) Spurs are provided

- (a) To train the flow of a river along a specified Course**
- (b) To confine the width of the river**
- (c) Argillaceous**
- (d) None of the above**

Q : 26) The following data are available for a cross drainage project:

ITEM	CANAL	DRAINAGE
FSL/HFL	105.00 m	104.00 m
Bed level	100.00 m	102.00 m
Discharge	80 m ³ /s	12 m ³ /s

The most appropriate cross drainage works for this situation is:

- (a) Siphon aqueduct**
- (b) Super passage**
- (c) Aqueduct**
- (d) Siphon**

Q : 27) Consider the following statements:

An aqueduct is a cross drainage work in which

- A. A canal is carried over the drain age channel**
- B. A drain age channel is carried over the canal**
- C. Both drainage channel and canal are at the same level**

Which of these statements are correct?

- (a) Only A and B**
- (b) Only A**
- (c) Only B and C**
- (d) All three**

Q : 28) Meandering of a river is due to :

- (a) Sediment load of streams**
- (b) Discharge and hydraulic properties of streams**
- (c) Erodibility of the bed and banks of stream**
- (d) The natural topography of the location**

Q : 29) The difference in level between the top of a bank and supply level in a canal, is called

- (a) Berm**
- (b) Height of bank**
- (c) Supply capacity**
- (d) Free board**

- Q : 30) What is Probable Maximum Precipitation(PMP) ?**
- (a) Projected precipitation for a 100 years return period**
 - (b) Upper limit of rainfall that is justified climatologically**
 - (c) Effective perceptible water**
 - (d) Maximum precipitation for all recorded storms**

Q : 31) The type of rain-gauge commonly used in India for measuring rainfall is given by:

- (a) weighing bucket type rain-gauge**
- (b) tipping bucket type rain-gauge**
- (c) floating type rain-gauge**
- (d) Simon's rain-gauge**

Q : 32) Which precipitation is caused by natural rising of warmer lighter air in colder and denser Surroundings?

- (a) Cyclonic precipitation**
- (b) Orographic precipitation**
- (c) Convective precipitation**
- (d) None of these**

Q : 33) Isobar is a line which joints points of equal

- (a) atmospheric pressure**
- (b) rainfall depth**
- (c) Humidity**
- (d) Temperature**

Q : 34) An isohyet is a line joining points of

- (a) Equal temperature**
- (b) Equal humidity**
- (c) Equal evaporation**
- (d) Equal rainfall**

Q : 35) Depth-Area-Duration (DAD) curves of precipitation are drawn as

- (a) Minimizing appropriate data points**
- (b) Maximizing appropriate data points**
- (c) Best fit curves through the appropriate data points**
- (d) Best fit mean straight lines through the appropriate data points**

Q : 36) The standard height of standard rain gauge is

- (a) 10 cm**
- (b) 20 cm**
- (c) 30 cm**
- (d) 40 cm**

Q : 37) Which instrument is used to measure the precipitation in the regions of difficult and inaccessible terrains?

- (a) Radar**
- (b) Float type rain gauge**
- (c) Weighing bucket rain gauge**
- (d) Siphon rain gauge**

Q : 38) A 1 hour rainfall of 10 cm has return period of 50 years. The probability that 1 hour of rainfall 10 cm or more will occur in each of two successive years is:

- (a) 0.04**
- (b) 0.2**
- (c) 0.02**
- (d) 0.0004**

- Q : 39) A isochrones is a line of the basin map**
- (a) joining rain gauge stations having equal rainfall duration**
 - (b) joining points having equal rainfall depth in a given time interval**
 - (c) joining points having equal time of travel of surface runoff to the catchments outlet**
 - (d) joining points which are at equal distance from the catchments outlet.**

- Q : 40) Stilling basin is provided at the downstream floor**
- (a) increase the discharge through the regulator**
 - (b) trap silt in the downstream floor**
 - (c) reduce uplift pressure on the floor**
 - (d) dissipate energy of flow**

Q : 41) When rain falls as water droplets of Size less than 0.5mm, so light in weight to appear as floating in air, is termed as:

- (a) Rain**
- (b) Hail**
- (c) Dew**
- (d) Drizzle**

Q : 42) Orographic precipitation occurs due to air masses lifted to higher altitudes by

- (a) The density differences of air masses**
- (b) A frontal action**
- (c) The presence of mountain barriers**
- (d) Extra tropical cyclones**

Q : 43) If 'p' is the precipitation, 'a' is the area represented by a rain gauge, and 'n' is the number of rain gauges in a catchment area, then the weighted mean rainfall is

(a) $\frac{\sum ap^3}{\sum a^2}$

(b) $\frac{\sum ap}{n}$

(c) $\frac{\sum ap}{\sum a}$

(d) $\frac{\sum ap^5}{\sum a^3}$

Q : 44) The Penman's evapotranspiration equation is based on

- (a) energy balance method**
- (b) water budget method**
- (c) mass transfer method**
- (d) energy balance and mass transfer approach**

Q : 45) Blaney - Criddle method is used to determine:

- (a) Evaporation**
- (b) Consumptive use of crop**
- (c) Infiltration**
- (d) Interception**

Q : 46) Aridity index (AI) is defined as (where PET = Potential Evapotranspirations, AET = Actual Evapotranspirations)

- (a) $4AI = (AET - PET) / AET \times 100$**
- (b) $AI = (AET - PET) / PET \times 100$**
- (c) $2AI = (PET - AET) / PET \times 100$**
- (d) $AI = (PET - AET) / PET \times 100$**

Q : 47) A rain gauge recorded hourly rainfall as 5cm, 2cm, 4cm and 3 cm for a four hour storm | respectively. If the ϕ index was 3cm/hour, the | | total direct runoff from a catchments for the storm was

- (a) 14 cm**
- (b) 3 cm**
- (c) 12 cm**
- (d) 2 cm**

Q : 48) Muskinghum method for routing of flood

- (a) is used for routing floods through reservoirs**
- (b) is a method of routing that uses continuity and momentum equation**
- (c) is a hydrologic method of routing floods through streams**
- (d) is one is which only energy equation is used**

Q : 49) The relationship among the specific yield S_y and specific retention S_r and porosity n of an aquifer is-

- (a) $S_y = S_r + n$**
- (b) $S_y = S_r - n$**
- (c) $S_y = n - S_r$**
- (d) $S_y = S_r + 2n$**

Q : 50) The soil which can store water and allow a small quantity to flow through it over a long period is called:-

- (a) Aquifer**
- (b) Aquitard**
- (c) Aquifuge**
- (d) Aquiclude**

Q : 51) A rock formation which contains and readily yields water to tube wells is:

- (a) Aquiclude**
- (b) Aquifuge**
- (c) Aquitard**
- (d) Aquifer**

Q : 52) The Dupit formula is based on:

- (a) Three observation wells**
- (b) One observation wells**
- (c) Two observation wells**
- (d) Four observation wells**
- (e) No observation well**

Q : 53) The volume of water released from a storage per unit in hydraulic head in the aquifer, per unit area of the aquifer is called as:

- (a) Transmissibility**
- (b) Storability**
- (c) Specified yield**
- (d) Specific retention**

Q : 54) The estimation of cumulative infiltration that may eventually become ground water recharge is defined as

- (a) abstraction**
- (b) run-off**
- (c) water balance**
- (d) storage**

Q : 55) If within a zone of saturation, an impervious deposit below a pervious deposit is found to support a body of saturated material, then this body of saturated material is known as-

- (a) Plowing well**
- (b) Artesian aquifer**
- (c) Aquiclude**
- (d) Perched aquifer**

Q : 56) The measure of the amount to which light is absorbed or scattered by the suspended material in water is called:

- (a) Opacity**
- (b) Diffraction**
- (c) Turbidity**
- (d) None of the above**

Q : 57) In a water treatment plant, dissolved iron and manganese can be removed from the water by-

- (a) Aeration**
- (b) Aeration and coagulation**
- (c) Aeration and filtration**
- (d) Aeration and sedimentation**

Q : 58) Identify the instrument which is not used to measure the turbidity of water sample.

- (a) Nephlo turbidity meter**
- (b) Jackson turbidity meter**
- (c) Aries turbidity meter**
- (d) Baylis turbidity meter**

Q : 59) Orthotolidine test is used for determine action of

- (a) dissolved oxygen**
- (b) residual chlorine**
- (c) biochemical oxygen demand**
- (d) None of these**

Q : 60) Activated carbon is used for

- (a) disinfection**
- (b) removing hardness**
- (c) removing odours**
- (d) removing of corrosiveness**

Q : 61) In water supply for public, threshold odour should be-

- (a) 1**
- (b) between 1 and 3**
- (c) 3**
- (d) more than 3**

Q : 62) Match the following

List-I	List-II
(A) Hardness	(i) Winkler method
(B) Chlorine	(ii) EDTA method
(C) DO	(iii) Orthotolidine test
(D) Chloride	(iv) Mohr method

Codes -

	(A)	(B)	(C)	(D)
(a)	(ii)	(iii)	(i)	(iv)
(b)	(ii)	(iv)	(i)	(iii)
(c)	(i)	(iii)	(ii)	(iv)
(d)	(i)	(iv)	(ii)	(iii)

Q : 63) The commonly used indicator for measuring iron concentration in water is:

- (a) Sodium thiosulphate**
- (b) Silver nitrate**
- (c) Eriochrome black T**
- (d) 1, 10 phenanthroline**

Q : 64) The desirable limit of chloride content as per BIS standards in water for domestic supplies should not exceed

- (a) 250 ppm**
- (b) 450 ppm**
- (c) 350 ppm**
- (d) 550 ppm**

Q : 65) Critical dissolved oxygen (D.O) deficit occurs in which one of the following zones of pollution of 'oxygen sag curve' in case of self-purification of natural streams?

- (a) Zone of recovery**
- (b) Zone of active decomposition**
- (c) Zone of degradation**
- (d) Zone of clear water**

Q : 66) Which of the following is NOT an advantage of chloramines-ammonia treatment of water?

- (a) It is less effective than chlorine alone**
- (b) It prevents bad taste and odour**
- (c) There is no danger of overdose**
- (d) Quantity of chlorine required is reduced especially if organic matter is present in large amounts**

Q : 67) The water treatment required for water obtained from a deep tube well is:

- (a) Coagulation and flocculation only**
- (b) Filtration only**
- (c) Disinfection only**
- (d) Coagulation, flocculation and filtration**

Q : 68) EDTA titration method of determination of water sample uses an indicator which combines with hardness causing divalent cations and forms a coloured complex. The name of the indicator and the colour of the formed complex respectively are:

- (a) Ferroin and Dark blue**
- (b) Ferroin and Wine red**
- (c) Eriochrome Black T and Dark blue**
- (d) Eriochrome Black T and Wine red**

Q : 69) In water treatment, rapid gravity filters are remove:

- (a) Dissolved organic substances**
- (b) Dissolved solids and gases**
- (c) Floating solids and dissolved inorganic solids**
- (d) Bacteria and colloidal solids**

Q : 70) The area of the openings in screens should be such that the velocity of flow through them does not exceed

- (a) 0.75 to 1 m/s**
- (b) 3 to 5 m/s**
- (c) 1.5 to 3 m/s**
- (d) 5 to 6 m/s**

Q : 71) Match the following:

List-I	List-II
A. Dead End System	P. It is suitable for cities with rectangular where the water mains and branches are laid in rectangles.
B. Grid Iron System	Q. The area is divided into different zones. The water is pumped into the distribution reservoir kept in the middle of each zone
C. Ring System	R. It is suitable for old towns and cities having no definite pattern of roads.
D. Radial System	S. The supply main is laid all along the peripheral roads and sub-mains branch out from the mains.

- (a) A-P. B-S. C-P, D-R
- (b) A-Q. B-S, C-R, D-P
- (c) A-R, B-P, C-S, D-Q
- (d) A-S. B-R, C-P, D-Q

Q : 72) A town is required to treat $4.2 \text{ m}^3/\text{min}$ of raw water for daily domestic supply. Flocculating particles are to be produced by chemical particles coagulation. A Column analysis indicated that an overflow rate of 0.2 mm/sec will produce satisfactory particle removal in a settling basin at a depth of 3.5 m . The required surface area (in m^2) for settling is:

- (a) 200**
- (b) 420**
- (c) 350**
- (d) 840**

Q : 73) For proper slow mixing in the flocculator of water treatment plant, the temporal mean velocity gradient G needs to be of the order of

- (a) 1.5 to 10 s^{-1}**
- (b) 20 to 70 s^{-1}**
- (c) 100 to 200 s^{-1}**
- (d) 250 to 350 s^{-1}**

Q : 74) Total kjeldahl Nitrogen is the

- (a) Summation of Organic and Ammoniacal Nitrogen**
- (b) Summation of Organic and Albuminoid Nitrogen**
- (c) Summation of Organic and Free Nitrogen**
- (d) Difference of Organic and Ammoniacal Nitrogen**

Q : 75) The purpose of recoronation after lime-soda process of water softening is:

- (a) Removal of excess soda from water**
- (b) Removal of non-carbonate hardness**
- (c) Conversion of precipitates to soluble form**
- (d) Recovery of excess lime**

Q : 76) The maximum depth of sedimentation tank is limited up to

- (a) 2m**
- (b) 4m**
- (c) 3m**
- (d) 6m**

Q : 77) In primary settling tank, suspended solids are reduced from

- (a) 20 to 40%**
- (b) 70 to 90%**
- (c) 10 to 20%**
- (d) 40 to 70%**

Q : 78) Effective size to be used in rapid sand gravity filter is

- (a) 0.45 -0.70 mm**
- (b) 0.95 - 1.100 mm**
- (c) 0.15 - 0.30 mm**
- (d) 0.75 - 0.90 mm**

Q : 79) The maximum permitted loss of head in a rapid sand filter is

- (a) 2 m**
- (b) 4 m**
- (c) 1 m**
- (d) 3 m**

Q : 80) For water purification in a city, it is decided to use rapid sand filter after sedimentation tanks, with the following data : Design loading rate per filter = $200 \text{ m}^3/\text{m}^2/\text{day}$; Design flow rate = $0.5 \text{ m}^3/\text{s}$; Surface area per filter = 55 m^2 . The number of filter units required in the plant are:

- (a) 3**
- (b) 4**
- (c) 5**
- (d) 2**

Q : 81) For rapid sand filter, sand should have the following specifications:

- (a) Effective size 0.1 - 0.5 mm
Uniformity co-efficient = 2 to 4**
- (b) Effective size 0.2 - 0.5 mm
Uniformity co-efficient = 2 to 3**
- (c) Effective size 0.45 - 0.7 mm
Uniformity co-efficient = 1.3 to 1.7**
- (d) Effective size 0.7 - 0.9 mm
Uniformity co-efficient = 1 to 5**

Q : 82) The disinfection efficiency of chlorine in water treatment

- (a) is not dependent on pH value**
- (b) is increased by increased pH value**
- (c) remains constant at all pH value**
- (d) is reduced by increased pH value**

Q : 83) Select the correct sequence of different phases of biomass curve-

(a) Lag phase -> Log growth phase-> stationary phase -> endogenous phase

(b) Lag phase -> endogenous phase -> stationary phase -> log growth phase

(c) Endogenous -> Lag phase -> stationary phase -> Log growth phase

(d) Log endogenous phase -> Lag phase -> Endogenous phase -> stationary phase

Q : 84) What is food to micro-organism ratio in an aeration tank having following data?

Flow 1 MLD, MLSS = 2000 mg/L

Influent BOD₅ = 200 mg/L

Volume of aeration tank = 500 m³

- (a) 0.20**
- (b) 0.80**
- (c) 5.00**
- (d) 1.25**

Q : 85) The purpose of re-carbonation after water softening by the lime-soda process is the

- (a) Removal of non-carbonate hardness in the water**
- (b) Removal of excess soda from the water**
- (c) Recovery of lime from the water**
- (d) conversion of precipitates to soluble forms in the water**

Q : 86) Which type of drainage system Consist of laterals and sub-mains in which laterals are provided only one side of a sub-main?

- (a) Double main system**
- (b) Grid iron layout**
- (c) Herring bone pattern**
- (d) Natural system**

Q : 87) The valve, which allows the flow only in one direction, is known as

- (a) scour valve**
- (b) reflux valve**
- (c) sluice valve**
- (d) gate valve**

Q : 88) Concrete pipes are jointed by

- (a) collar joint**
- (b) hinge joint**
- (c) flush joint**
- (d) (a) or (b)**

Q : 89) The type of valve which is provided to regulate the flow of after through the pipelines is

- (a) Air valve**
- (b) Check valve**
- (c) Sluice valve**
- (d) Globe valve**

Q : 90) The four major water supply distribution systems are

- (a) dead end, trees, grid iron and reticulation**
- (b) dead end, trees, grid iron and circular**
- (c) trees, grid iron ring and radial**
- (d) tree, reticulation, circular and ring**

Q : 91) Ferrule is one of the important appurtenances installed in

- (a) combined sewerage system**
- (b) water distribution system**
- (c) house drainage system**
- (d) storm sewerage system**

Q : 92) To have effective control of water supply different types of valves are used in the distribution system. Match the items in List 1 (Purpose to be served) with those form List 2

List 1	List 2
M. Remove air from the pipe line	1. Gate Valve
N. Limit the flow of water to single direction	2. Pilot Valve
O. Reduce high inlet pressure to lower inlet pressure	3. Release Valve
P. Stop the flow of water in the pipeline	4. Check Valve

- (a) M -3; N-4; O-2; P-1 (b) M-3; N-2; O-1; P-4
 (c) M-2; N-1; O-3; P-4 (d) M-4; N-2; O-3; P-1

Q : 93) Out of the following distribution systems, which have the least number of cut-off valves?

- (a) Ring system**
- (b) Dead end system**
- (c) Rectangular system**
- (d) Radial system**
- (e) Grid iron system**

Q : 94) A goose neck is

- (a) a bent flexible pipe provided between ferrule and stop-cock**
- (b) a T-shaped brass length between water meter and ferrule**
- (c) a straight G.I. pipe, service pipe and stop-cock**
- (d) a bent rigid pipe between service pipe and water-meter**



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Q :) The length of National Highway (km) as per Lucknow road plan is given by

A : Area of the country (Km^2)/75

B : Area of the country (Km^2)/50

C : Area of country (Km^2)/40

D : Area of the country (km^2)/25

Q :) The Nagpur road plan formula were prepared assuming a shape of:

A : Star and Square pattern

B : Star and Grid pattern

C : Star and Circular pattern

D : Star and Rectangular pattern

Q :) The road foundation for modern highways construction, was developed by:

A : Tresaguet

B : Telford

C : Telford and Macadam simultaneously

D : Macadam

Q :) IRC Committee was was appointed by the Government with M.R. Jayakar as chairman in:

A : 1920

B : 1925

C : 1926

D : 1927

Q :) Determine the safe stopping sight distance for design speed of 14 m/s for two-way traffic on a two lane road assuming the coefficient of friction as 0.28 and a reaction time of 2 seconds

A : 63.67 m

B : 61.47 m

C : 63.27 m

D : 73.57 m

Q :) Equation for the length of transition curve for plain and rolling terrain is :

A : $L_s = 3.7 V^2/R$

B : $L_s = 4.7 V^2/R$

C : $L_s = 2.7 V^2/R$

D : $L_s = 1.7 V^2/R$

Q :) The side drains are provided on both the sides of the roadway, when the road is

A : Along salient curve

B : In cutting

C : Along re-entrant curve

D : All of these

Q :) The length of summit curve on a two lane two way high way depends upon :

A : Allowable rate of change of centrifugal A acceleration

B : Coefficient of lateral friction

C : Required overtaking sight distance

D : Required stopping sight distance

Q :) FRC recommended % values of camber for different types of road surface can be arranged in descending order of following roads:

- 1. Water bound macadam road**
- 2. Thin bituminous surface road**
- 3. Cement-concrete road**
- 4. Earth road**

A : 4, 2, 3, 1

B : 3, 1, 2, 4

C : 4, 1, 2, 3

D : 3, 2, 1, 4

Q :) Grade compensation on curves is calculated as when radius of curve R in meter is given

(a) $\frac{30 + R}{R}$

(b) $\frac{50}{R}$

(c) $\frac{R}{30 + R}$

(d) $\frac{R}{30}$

Q :) Full amount of extra width of pavement, on the curve, is provided at

A : Beginning of the transition curve

B : Centre of the transition curve

C : Beginning of the circular curve

D : Centre of the circular curve

Q :) The shoulder provided along the road edge should be

A : Rougher than the traffic lanes

B : Smoother than traffic lanes

C : Of same colour as that of the pavement

D : Of very low load bearing capacity

Q :) The minimum radius of horizontal curve for N.H. on plain terrain is taken as

A : 90 m

B : 155 m

C : 60 m

D : 350 m

Q :) As per IRC, intermediate sight distance is:

A : Twice the stopping sight distance

B : Thrice the head light sight distance

C : Equal to head light sight distance

D : Twice the head light sight distance

Q :) The value of mechanical widening for a highway of 7m wide on a horizontal curve with radius of 50 m, using wheel base length 10 m is

A : 2.5 m

B : 1 m

C : 2 m

D : 0.50 m