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Question No.1

Marks: 1.00

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Which of the following is NOT a rough or approximate estimate method of the project?

- (A) **Cylindrical base method (Correct Answer)** (Chosen option)
- (B) Unit base method
- (C) Plinth area method
- (D) Cubical contents method

Question No.2

Marks: 1.00

Bookmark

The width of the trench is generally kept _____ to _____ mm more than the outside diameter of the pipe, with a minimum width of 750 mm which is required for laying the pipe conveniently.

- (A) **300 to 500 (Correct Answer)**
- (B) 750 to 900 (Chosen option)
- (C) 200 to 250
- (D) 100 to 200

Question No.3

Marks: 1.00

Bookmark

The rate of rain fall for successive 30 minute periods of a 4 hour storm are 3.5, 4.5, 5.6, 8.5, 7.8, 6.4, 4.0, 3.8. taking ϕ - index as 5.0 compute W – index in cm/hr

- (A) **4.475 (Correct Answer)**
- (B) 8.5 (Chosen option)
- (C) 5.25
- (D) 4.5

Question No.4

Marks: 1.00

Bookmark

Where was the Solani Aqueduct built?

- (A) Meerut
- (B) **Roorkee (Correct Answer)**
- (C) Delhi
- (D) Shimla

Question No.5

Marks: 1.00

Pneumatic tyred rollers are suitable for compacting:

- (A) Silty Soils
- (B) Silty and Clayey soils
- (C) Clayey soils
- (D) **Non-plastic silts and fine sands (Correct Answer)** (Chosen option)

Question No.6

Marks: 1.00

Bookmark

What consistency of cement paste is required to calculate the initial setting time?

- (A) 0.90P
- (B) 0.75P
- (C) 0.50P
- (D) **0.85P (Correct Answer)** (Chosen option)

Question No.7

Marks: 1.00

Bookmark

Select the INCORRECT statement.

- (A) Unit for glazing measurement is sq.m.
- (B) Unit for painting measurement is sq.m.
- (C) **Unit for concreting measurement is sq.m. (Correct Answer)** (Chosen option)
- (D) Unit for plastering measurement is sq.m.

Question No.8

Marks: 1.00

Bookmark

Point where BM changes between compression and tension or vice versa is known as:

- (A) Point of inflection
- (B) Zero bending moment point
- (C) **Point of Contra flexure (Correct Answer)** (Chosen option)
- (D) Critical point

Question No.9

Marks: 1.00

Bookmark

Determine the eccentricity of a load balancing cable for a beam of size 350×750 mm at centre of it. The beam subjected to a live load of 10 KN/m over a span of 9 m and is simply supported. The prestressing force applied is 1700 KN.

- (A) 89.9 mm
- (B) 100 mm
- (C) 79.8 mm
- (D) **98.6 mm (Correct Answer)**

Question No.10

Marks: 1.00

Bookmark

The basic principles of surveying needs to be followed for accurately locating the points on:

- (A) **Earth surface (Correct Answer)** (Chosen option)
- (B) Water bodies

(C) Valleys

(D) Hills

Question No.11

Marks: 1.00

Bookmark

How to calculate the total quantity of water required for the water supply scheme?

(A) **Rate of consumption per capita per day × Population (Correct Answer)** (Chosen option)

(B) $5633\sqrt{\text{Population}}$

(C) $3182\sqrt{\text{Population}}$

(D) Rate of consumption per capita per day / Population

Question No.12

Marks: 1.00

Bookmark

Which one of the following scales is used to plot contour map?

(A) **Horizontal scale (Correct Answer)** (Chosen option)

(B) Vertical scale

(C) Vernier scale

(D) Oblique scale

Question No.13

Marks: 1.00

Bookmark

Advantage of drip irrigation is/are:

(A) Fixed in applicable rate (Chosen option)

(B) Moderate yield

(C) Low yield

(D) **High yield (Correct Answer)**

Question No.14

Marks: 1.00

Bookmark

Guide bank is hydraulic structure across an alluvial river are:

(A) Always used in pairs on both sides of river

(B) Useless in meandering streams

(C) Absolute and are not used in modern structures

(D) **Preventing the outflanking of structure by the changing course of stream (Correct Answer)** (Chosen option)

Question No.15

Marks: 1.00

Bookmark

What was the distance covered by the first train running between Bombay to Thane in 1853?

(A) 37 km

(B) 36 km

(C) **34 km (Correct Answer)**

(D) 35 km (Chosen option)

Question No.16

Marks: 1.00

Bookmark

Independent float is:

- (A) **Greater than or equal to total float (Correct Answer)**
- (B) Less than or equal to total float (Chosen option)
- (C) Always equal to the total float
- (D) Always greater than total float

Question No.17

Marks: 1.00

BookmarkA short column of rectangular section carries a vertical point load W axially, the stress on the section of the column will be:

- (A) Zero at the axis
- (B) Tensile on one end and compressive on the other
- (C) Zero at the end
- (D) **Uniform (Correct Answer) (Chosen option)**

Question No.18

Marks: 1.00

Bookmark

Name the process which is used to remove the phosphorous from sewage and also helps in controlling eutrophication.

- (A) Flocculation (Chosen option)
- (B) Sedimentation
- (C) Filtration
- (D) **Coagulation (Correct Answer)**

Question No.19

Marks: 1.00

Bookmark

The ratio moment of inertia of a section about the neutral axis to the distance of the outermost layer from the neutral axis is known as:

- (A) Modulus of elasticity
- (B) Poisson's ratio
- (C) Youngs modulus
- (D) **Section modulus (Correct Answer) (Chosen option)**

Question No.20

Marks: 1.00

Bookmark

The vertical component of the earthquake wave which produces adverse effects on the stability of a dam when is acting in:

- (A) Any direction
- (B) Upward direction (Chosen option)
- (C) Upward and downward direction
- (D) **Downward direction (Correct Answer)**

Question No.21

Marks: 1.00

Bookmark

The angle made by a contour line passing through a point with a line of maximum slope

at that point is:

- (A) 45°
- (B) 90° (Correct Answer) (Chosen option)
- (C) 180°
- (D) 0°

Question No.22

Marks: 1.00

Bookmark

The purpose of maintaining the cash book is:

- (A) To compute profit/loss in project
- (B) To compute the benefit-cost ratio
- (C) To track the project progress
- (D) To record payments and receipts (Correct Answer) (Chosen option)

Question No.23

Marks: 1.00

Bookmark

The ratio of the speed of change of discharge of an outlet and parent channel, is understood as:

- (A) Ductility
- (B) Sensitivity
- (C) Flexibility (Correct Answer) (Chosen option)
- (D) Efficiency

Question No.24

Marks: 1.00

Bookmark

The contractor is paid a certain percent of the actual cost of construction as a profit in which type of contract?

- (A) Lump-sum contact
- (B) BOT contract
- (C) Cost plus percentage contract (Correct Answer) (Chosen option)
- (D) Schedule contract

Question No.25

Marks: 1.00

Bookmark

The chain of command principle of management states that:

- (A) Unity of direction should be proper and fine.
- (B) Work should be divided equally into the chain of employees.
- (C) Instructions and orders should flow from higher to lower authority. (Correct Answer) (Chosen option)
- (D) Unity of command should be proper and fine.

Question No.26

Marks: 1.00

Bookmark

Find out the deviation angle where a vertical summit curve is formed at the intersection of two gradients, +3.0% and -5.0%.

- (A) 0.06

- (B) 0.05
(C) 0.07
(D) **0.08 (Correct Answer)** (Chosen option)

Question No.27

Marks: 1.00

Bookmark

A fall which maintains its depth is:

- (A) High weir fall
(B) **Trapezoidal notch fall (Correct Answer)**
(C) Rectangular notch fall
(D) Low weir fall (Chosen option)

Question No.28

Marks: 1.00

Bookmark

When boundary is rough, then:

- (A) $\frac{k}{\delta'} < 6.0$
(B) $\frac{k}{\delta'} > 6.0$ (Chosen option)
(C) $\frac{k}{\delta'} > 0.25$
(D) $\frac{k}{\delta'} > 0.2$ (Correct Answer)

Question No.29

Marks: 1.00

Bookmark

The demand and order units of a product are 10 and 12 units respectively. If the cost of placing an order is Rs.100, then find out the annual ordering cost of the product.

- (A) Rs. 103.33
(B) Rs. 93.33
(C) Rs. 73.33
(D) **Rs. 83.33 (Correct Answer)**

Question No.30

Marks: 1.00

Bookmark

Critical velocity (V_c) equation is expressed as _____

- (A) $V_c = \sqrt{y_c}$
(B) $V_c = \sqrt{gy_c}$ (Correct Answer) (Chosen option)
(C) $V_c = \sqrt{gq}$
(D) $V_c = \sqrt{g}$

Question No.31

Marks: 1.00

The maximum spacing of spiral tie is ____ mm.

- (A) **75 (Correct Answer)** (Chosen option)
(B) 200
(C) 300
(D) 450

Question No.32

Marks: 1.00

Bookmark

Flakiness index (FI) of aggregate is the percentage by weight of aggregate particles, the least dimension of which is less than:

- (A) $1/8^{\text{th}}$ of their mean dimension
(B) **$3/5^{\text{th}}$ of their mean dimension (Correct Answer)** (Chosen option)
(C) $1/6^{\text{th}}$ of their mean dimension
(D) $1/10^{\text{th}}$ of their mean dimension

Question No.33

Marks: 1.00

Bookmark

Which of the following is "The Steepest Gradient"?

- (A) Ruling gradient
(B) Minimum gradient
(C) **Exceptional gradient (Correct Answer)** (Chosen option)
(D) Limiting gradient

Question No.34

Marks: 1.00

Bookmark

Which country adopted a new design philosophy known as the limit state approach?

- (A) Europe
(B) Canada
(C) India (Chosen option)
(D) **Russia (Correct Answer)**

Question No.35

Marks: 1.00

Bookmark

A fitting or device design constructed to prevent the passage of foul gases from pipe to outside without affecting the flow of sewage is called:

- (A) **Trap (Correct Answer)** (Chosen option)
(B) Elbow
(C) Stack
(D) Vent pipe

Question No.36

Marks: 1.00

Bookmark

Which of the statements is FALSE?

- (A) Equilateral Triangle is symmetrical about X-X axis if the base of the triangle is oriented in the Y-Y axis

- (B) T section is symmetrical about both X-X axis and Y-Y axis (Correct Answer)
(C) Semicircle that is symmetrical about Y-Y axis, Then $\bar{X} = 0$
(D) Rectangle is symmetric about both the axes, $\bar{X} = 0$ and $\bar{Y} = 0$ (Chosen option)

Question No.37

Marks: 1.00

Bookmark

Which of the following has largest dimension of a rail?

- (A) Foot width
(B) Head width
(C) Cross section width
(D) Height (Correct Answer) (Chosen option)

Question No.38

Marks: 1.00

Bookmark

What is the minimum clear cover for concrete structure which is exposed to sea coast area?

- (A) 45 mm (Correct Answer) (Chosen option)
(B) 50 mm
(C) 30 mm
(D) 25 mm

Question No.39

Marks: 1.00

Bookmark

Which of the following structural members is subjected to both tension and deflection?

- (A) Lattice member
(B) Column
(C) Beam-Column (Correct Answer)
(D) Beam (Chosen option)

Question No.40

Marks: 1.00

Bookmark

The safe facility provided for pedestrians to walk along the roadway is

- (A) Footpath (Correct Answer) (Chosen option)
(B) Pavement Carriageway
(C) Shoulders
(D) Cycle Tracks

Question No.41

Marks: 1.00

Bookmark

Major energy losses occur due to:

- (A) Bend in pipe
(B) Pipe fitting's
(C) Expansion of pipes
(D) Friction (Correct Answer) (Chosen option)

Question No.42

Marks: 1.00

The reinforcements in two mutually perpendicular directions are designed to resist

- (A) Cracking (Chosen option)
- (B) Bending moment (Correct Answer)
- (C) Shear force
- (D) Torsion

Question No.43

Marks: 1.00

Bookmark

The planes of maximum and minimum normal stresses are at an angle of _____ to each other.

- (A) 60°
- (B) 120°
- (C) 45°
- (D) 90° (Correct Answer) (Chosen option)

Question No.44

Marks: 1.00

Bookmark

If nominal shear stress is less than half of design shear strength of concrete then:

- (A) Maximum shear reinforcement is to be provided
- (B) Design shear reinforcement is to be provided (Chosen option)
- (C) No shear reinforcement is required (Correct Answer)
- (D) Minimum shear reinforcement is to be provided

Question No.45

Marks: 1.00

Bookmark

A solid shaft is to transmit 100 kW power at 200 rpm. The diameter of the shaft is given as 75 mm. If the maximum torque transmitted in each revolution exceeds the mean by 15 percent, shear stress for the material of the shaft will be:

- (A) 70 N/mm²
- (B) 74 N/mm²
- (C) 62 N/mm²
- (D) 66 N/mm² (Correct Answer)

Question No.46

Marks: 1.00

Bookmark

Which quality teacher's concept has three major concerns - Planning, Control and Improvement?

- (A) Joseph Juran (Correct Answer)
- (B) H.F. Dodge
- (C) Philip Crosby
- (D) Deming

Question No.47

Marks: 1.00

Bookmark

Which one of the following surveys is used for economic importance for a country?

- (A) Land surveys
- (B) **Geological surveys (Correct Answer)** (Chosen option)
- (C) Aerial surveys
- (D) Defence surveys

Question No.48

Marks: 1.00

Bookmark

The force of resistance per unit area, offered by a body against deformation is known as:

- (A) Tensile stress
- (B) Strain
- (C) **Stress (Correct Answer)** (Chosen option)
- (D) Nominal stress

Question No.49

Marks: 1.00

Bookmark

What percentage of particle is removed of settling velocity 0.18 cm/sec if particle of size 5×10^{-3} cm diameter and specific gravity is 2.65? (Kinematic viscosity of water at 20°C is 1.01×10^{-2} cm²/sec and Reynold number is less than 0.5)?

- (A) 100%
- (B) 70.81%
- (C) **81.81% (Correct Answer)**
- (D) 50%

Question No.50

Marks: 1.00

Bookmark

The length of a long wall is the distance between the walls from c/c and _____ in the long and short wall technique of calculation.

- (A) 1/4 breadth of wall on each side
- (B) 3/4 breadth of wall on each side
- (C) full Breadth of wall
- (D) **1/2 × breadth of wall each side (Correct Answer)** (Chosen option)

Question No.51

Marks: 1.00

Bookmark

In railways, the disc signals are provided for the purpose of:

- (A) **Shunting (Correct Answer)** (Chosen option)
- (B) Possible danger ahead
- (C) Dead slow movement
- (D) Indicating busy platform

Question No.52

Marks: 1.00

Bookmark

Which of the following statements is INCORRECT?

- (A) PERT is appropriate for projects with uncertain time predictions.
- (B) **PERT and CPM are both event-driven methodologies. (Correct Answer)** (Chosen option)

(C) PERT focuses on events, whereas CPM focuses on activities.

(D) For projects with predictable activities, CPM is a good fit.

Question No.53

Marks: 1.00

Bookmark

Which one of the following is the correct one as per the reiteration method?

(A) The angle is measured three times each using face left and face right observations. (Chosen option)

(B) The same angle is measured by face left and by face right observations.

(C) **The angle is measured, and the instrument turned to close the horizon.** (Correct Answer)

(D) The same angle is measured three times.

Question No.54

Marks: 1.00

Bookmark

If the dry density of the soil sample collected through core cutter test is found to be 1.67 g/cm^3 , then its dry unit weight is equal to _____

(A) **16.38 (Correct Answer)** (Chosen option)

(B) 14.56

(C) 12.28

(D) 18.21

Question No.55

Marks: 1.00

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Why an intercepting trap is often provided at the junction of the house sewer and municipal sewer?

(A) To prevent the leakage of the existing sullage pipes

(B) To prevent the airlocks and siphonage

(C) **To prevent the entry of foul gases of the municipal sewer (Correct Answer)** (Chosen option)

(D) To the entry of colloidal particles

Question No.56

Marks: 1.00

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A U-Tube is made up of two capillaries of bores 1.2 mm and 2.4 mm respectively. The tube is held vertical and partially filled with liquid of surface tension 0.06 N/m and zero contact angle. If estimated difference in level of two menisci is 15mm, calculate mass density of the liquid.

(A) $\rho = 679.45 \text{ g/m}^3$

(B) $\rho = 69.45 \text{ Kg/m}^3$

(C) $\rho = 579.45 \text{ Kg/m}^3$

(D) **$\rho = 679.45 \text{ Kg/m}^3$ (Correct Answer)**

Question No.57

Marks: 1.00

Bookmark

Serviceability limit in Limit state method deals with which one of the following?

(A) Compression

- (B) Flexure
- (C) **Deflection (Correct Answer)** (Chosen option)
- (D) Shear

Question No.58

Marks: 1.00

Bookmark

Find the minimum diameter of a steel wire, which is used to raise a load of 4000 N if the stress in rod does not exceed 95 MN/m^2 .

- (A) 8.2 mm
- (B) 8 mm
- (C) 6.5 mm (Chosen option)
- (D) **7.32 mm (Correct Answer)**

Question No.59

Marks: 1.00

Bookmark

Which of the following statements is CORRECT?

- (A) The load factor for the limit state of serviceability is 1.5 for dead load and 1 for earthquake load.
- (B) The load factor for the limit state of serviceability is 1.5 for earthquake load and 1 for the dead load.
- (C) **The load factor for the limit state of serviceability is 1 for both dead load and earthquake load. (Correct Answer)** (Chosen option)
- (D) The load factor for the limit state of serviceability is 1.5 for both dead load and earthquake load.

Question No.60

Marks: 1.00

Bookmark

The highways running through the length and breadth of India, connecting major ports, foreign highways and capital of large states is called:

- (A) **National Highways (Correct Answer)** (Chosen option)
- (B) Other District Roads
- (C) Major District Roads
- (D) State Highways

Question No.61

Marks: 1.00

Bookmark

If the void ratio of the sample is 0.68 and specific gravity of solids is 2.70 then the dry unit weight of the sample using suitable interrelation is _____

- (A) **15.76 kN/m³ (Correct Answer)** (Chosen option)
- (B) 13.56 kN/m³
- (C) 9.81 kN/m³
- (D) 21.00 kN/m³

Question No.62

Marks: 1.00

Bookmark

Impermeable formations which contains water but are not capable of transmitting and not supplying significant quantity is known as:

- (A) Aquitard
- (B) **Aquiclude (Correct Answer)** (Chosen option)
- (C) Aquifuge
- (D) Aquifer

Question No.63

Marks: 1.00

Bookmark

The angle of inclination of an attracting groyne with the bank may be in the range of:

- (A) 90° to 120° (Chosen option)
- (B) 20° to 30°
- (C) 60° to 90°
- (D) **30° to 60° (Correct Answer)**

Question No.64

Marks: 1.00

Bookmark

In railway, the turn table is used for:

- (A) Preventing the lateral movement of wheels
- (B) Reducing the damage to the rails
- (C) Reducing the accidents
- (D) **Reversing the direction of the engine (Correct Answer)** (Chosen option)

Question No.65

Marks: 1.00

Bookmark

Which equation is used for smooth as well as rough boundaries?

- (A) Karman universal equation (Chosen option)
- (B) Velocity equation
- (C) Bernaulis equation
- (D) **Prandtl's universal distribution equation (Correct Answer)**

Question No.66

Marks: 1.00

Bookmark

If the soil sample is having liquid limit of 67%, then the compression index values if the soil is undisturbed and remoulded conditions are _____ respectively.

- (A) 0.39 and 0.51
- (B) 0.29 and 0.56
- (C) **0.51 and 0.39 (Correct Answer)**
- (D) 0.56 and 0.29 (Chosen option)

Question No.67

Marks: 1.00

Bookmark

The grade of the concrete is M35 used in the R.C.C.Columns, so the safe compressive stress in concrete is _____

- (A) 8 MPa
- (B) 6 MPa (Chosen option)
- (C) **9 MPa (Correct Answer)**
- (D) 7 MPa

Question No.68

Marks: 1.00

Bookmark

From the given data calculate the buckling load.

Length of column = 6 m

Cross section of the column = 300 mm x 400 mm

Modulus of elasticity $2 \times 10^5 \text{ N/mm}^2$

One end of column is fixed and the other end is hinged

- (A) $745 \times 10^3 \text{ KN}$
- (B) $583 \times 10^3 \text{ KN}$
- (C) **$99 \times 10^3 \text{ KN}$ (Correct Answer)** (Chosen option)
- (D) $247 \times 10^3 \text{ KN}$

Question No.69

Marks: 1.00

Bookmark

As per IRC, the maximum limit of superelevation in plain and rolling terrains and in snow bound areas is fixed as:

- (A) **7% (Correct Answer)** (Chosen option)
- (B) 8%
- (C) 5%
- (D) 6%

Question No.70

Marks: 1.00

Bookmark

What is the minimum value of composite sleeper index (CSI) for cross-overs while using timber material?

- (A) 1452
- (B) **1352 (Correct Answer)** (Chosen option)
- (C) 1552
- (D) 1252

Question No.71

Marks: 1.00

Bookmark

A soil sample which contains good representation of all sized particles is referred to as _____ soil.

- (A) **well graded (Correct Answer)** (Chosen option)
- (B) gap graded
- (C) uniformly graded
- (D) poorly graded

Question No.72

Marks: 1.00

Bookmark

Concrete with bulk density 2400 kg/m^3 is:

- (A) Extra light weight concrete
- (B) **Dense weight concrete (Correct Answer)** (Chosen option)
- (C) Super heavy weight concrete
- (D) Light weight concrete

Question No.73

Marks: 1.00

Bookmark

Reynold number is 1 to 2000 then drag coefficient:

- (A) Remain same
- (B) Increases (Chosen option)
- (C) **Decreases (Correct Answer)**
- (D) Becomes zero

Question No.74

Marks: 1.00

Bookmark

The property of a soil which permits flow of water or any other fluid through its interconnected voids is called

- (A) consolidation
- (B) specific gravity
- (C) compaction
- (D) **permeability (Correct Answer) (Chosen option)**

Question No.75

Marks: 1.00

Bookmark

The computerized ticketing and reservation were firstly introduced at which railway station?

- (A) Chennai
- (B) **New Delhi (Correct Answer)**
- (C) Mumbai
- (D) Howrah

Question No.76

Marks: 1.00

Bookmark

As per IS - 2720 - PART 17 -1986 the coefficient of permeability using constant head method is determined using the relation:

- (A) $k = \frac{QL}{Aht}$ (Correct Answer) (Chosen option)
- (B) $k = \frac{QLt}{Ah}$
- (C) $k = \frac{Qt}{AL}$
- (D) $k = 2.303 \left[\frac{aL}{At} \right] \log \left(\frac{h_1}{h_2} \right)$

Question No.77

Marks: 1.00

Bookmark

Measurement book does not keep the record of:

- (A) Direction of work
- (B) **Cash inflow and outflow (Correct Answer) (Chosen option)**

- (C) Dimension of work
- (D) Quantity of work

Question No.78

Marks: 1.00

Bookmark

A 4cm thick and 100 m² area floor is to be constructed with M15 concrete. Considering the 1.64 conversion factor, calculate the required amount of cement.

- (A) 0.86 m³
- (B) 0.98 m³
- (C) **0.94 m³ (Correct Answer)** (Chosen option)
- (D) 0.88 m³

Question No.79

Marks: 1.00

Bookmark

Which of the following instruments is NOT used for measurement of angles?

- (A) Total station
- (B) **Dumpy level (Correct Answer)**
- (C) Theodolite
- (D) Sextant (Chosen option)

Question No.80

Marks: 1.00

Bookmark

Select the CORRECT statement.

- (A) Normal duration < Crash duration and Normal cost < Crash cost
- (B) Normal duration < Crash duration and Normal cost > Crash cost
- (C) Normal duration > Crash duration and Normal cost > Crash cost
- (D) **Normal duration > Crash duration and Normal cost < Crash cost (Correct Answer)** (Chosen option)

Question No.81

Marks: 1.00

Bookmark

The distributing mains pipes taking water within the localities are:

- (A) Laid on the ground surface
- (B) Laid above the ground surface
- (C) The pipes are laid in trenches
- (D) **Laid below the ground surface (Correct Answer)** (Chosen option)

Question No.82

Marks: 1.00

Bookmark

If the boundary is stationary, the velocity of fluid at the boundary will be

- (A) **zero (Correct Answer)** (Chosen option)
- (B) different
- (C) constant
- (D) half

Question No.83

Marks: 1.00

The equation for time factor is given by:

- (A) $T = \frac{CvH}{t^2}$
- (B) $T = \frac{Cvt}{H^2}$ (Correct Answer) (Chosen option)
- (C) $T = \frac{Cvt^2}{H^2}$
- (D) $T = \frac{Cvt}{H}$

Question No.84

Marks: 1.00

Bookmark

Calculate the max normal stress if the axial tensile load in the x direction is given as 200 kN, shear stress is given as 100 N/mm² and cross sectional area is given as 2000 mm².

- (A) 140.6 N/mm²
- (B) 241 N/mm² (Correct Answer)
- (C) 198.0 N/mm²
- (D) 200 N/mm² (Chosen option)

Question No.85

Marks: 1.00

Bookmark

Which of the following methods is NOT related to depreciation charges?

- (A) Halsey's 50-50 formula (Correct Answer)
- (B) Straight-line method
- (C) Diminishing value method
- (D) Sinking fund method (Chosen option)

Question No.86

Marks: 1.00

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Which vibrators are used for road slabs?

- (A) Shutter vibrators
- (B) Surface vibrators (Correct Answer) (Chosen option)
- (C) Vibrating tables
- (D) Internal Vibrators

Question No.87

Marks: 1.00

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of water are electrically charged in nature.

- (A) Colloidal Impurities (Correct Answer)
- (B) Suspended impurities
- (C) Dissolved impurities (Chosen option)
- (D) Biological Contaminants

Question No.88

Marks: 1.00

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In Eastern India, the first passenger train ran between:

- (A) Dhanbad to Haldia
- (B) Dhanbad to Hooghly
- (C) **Howrah to Hooghly (Correct Answer)**
- (D) Howrah to Haldia (Chosen option)

Question No.89

Marks: 1.00

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In a pipe 400 mm diameter and 800 m length an oil of specific gravity 0.8 is flowing at rate $0.50 \text{ m}^3/\text{s}$. Find:

- i) Head lost due friction (h_f)
 - ii) Power request maintain flow (p)
- (Assume Kinematic viscosity of oil = 0.3 stoke)

- (A) **$h_f = 33.55 \text{ m}$, $p = 131.65 \text{ KW}$ (Correct Answer)**
- (B) $h_f = 30.6 \text{ m}$, $p = 130.5 \text{ KW}$
- (C) $h_f = 34.55 \text{ m}$, $p = 132.65 \text{ KW}$
- (D) $h_f = 50.7 \text{ m}$, $p = 140 \text{ MW}$

Question No.90

Marks: 1.00

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If D_1 & D_3 are the inside diameters of the cutting edge and sample tube respectively and D_2 & D_4 are the outside diameters of the cutting edge and sample tube respectively, then the outside clearance of the sampler is determined using the relation:

- (A) $\frac{D_2 + D_4}{D_4} \times 100$
- (B) $\frac{D_3 - D_1}{D_1} \times 100$
- (C) $\frac{D_2^2 - D_1^2}{D_1^2} \times 100$
- (D) $\frac{D_2 - D_4}{D_4} \times 100$ (Correct Answer)

Question No.91

Marks: 1.00

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Which one of the following surveys is NOT based upon the nature of the field survey?

- (A) Hydrographic survey
- (B) **Geological survey (Correct Answer)**
- (C) Cadastral survey (Chosen option)
- (D) Astronomical survey

Question No.92

Marks: 1.00

Bookmark

Which of the following is NOT an advantage of pre-stressed beams?

- (A) Pre-stressed beams are light in weight. (Chosen option)
- (B) Pre-stressed beams do not require heavy shear reinforcement.
- (C) The whole section of pre-stressed beam is useful.
- (D) **Pre-stress beams do not require any auxiliary unit. (Correct Answer)**

Question No.93

Marks: 1.00

Bookmark

Which of the following estimation methods requires robust input data for project estimation?

- (A) Top-down method
- (B) **Parametric model estimating (Correct Answer) (Chosen option)**
- (C) Analogous estimation
- (D) Expert judgement

Question No.94

Marks: 1.00

Bookmark

Which of the following methods is mainly used in the design of crossing in India?

- (A) Random method
- (B) Isosceles angle method
- (C) Centre line method
- (D) **Right angle method (Correct Answer) (Chosen option)**

Question No.95

Marks: 1.00

Bookmark

A pile having a length of 3 m and carrying 5 N/m UDL load is suspended at two points, then calculate the maximum bending moment at the point of suspension.

- (A) 0.87 N-m
- (B) 0.92 N-m
- (C) **0.96 N-m (Correct Answer) (Chosen option)**
- (D) 1 N-m

Question No.96

Marks: 1.00

Bookmark

Compass surveying is useful compared to chain surveying when:

- (A) Uneven terrain needs to be surveyed (Chosen option)
- (B) A small area needs to be covered in great detail
- (C) Chain Survey tools are not available
- (D) **A large area needs to be covered (Correct Answer)**

Question No.97

Marks: 1.00

Bookmark

A vehicle is moving with a design speed of 90 kmph on a horizontal curve of radius 200 m. What is the psychological widening required to negotiate this curve?

- (A) 0.56 m
- (B) 0.76 m
- (C) **0.66 m (Correct Answer) (Chosen option)**

(D) 0.46 m

Question No.98

Marks: 1.00

Bookmark

Friction factor in Darcy's weisbach formula is _____

- (A) **4F'** (Correct Answer) (Chosen option)
(B) 8F'L
(C) 10F'v²
(D) 5F'

Question No.99

Marks: 1.00

Bookmark

For a simply supported subjected to uniformly distributed load, if the length of the beam is doubled, deflection becomes _____ times.

- (A) 4 (Chosen option)
(B) 2
(C) **16** (Correct Answer)
(D) 8

Question No.100

Marks: 1.00

Bookmark

A _____ is established parallel to the sewer centre line at a distance that will not disturb and covered excavated material during Setting out of Sewer Centre Line.

- (A) bracing
(B) **offset line** (Correct Answer) (Chosen option)
(C) sewer center line
(D) trench edge line

Question No.101

Marks: 1.00

Bookmark

Select the CORRECT option from the following.

- (A) **Weight is the vector quantity and mass is scalar quantity** (Correct Answer) (Chosen option)
(B) Mass and weight are scalar quantities
(C) Mass is the vector quantity and weight is the scalar quantity
(D) Weight and mass are vector quantities

Question No.102

Marks: 1.00

Bookmark

Turning the telescope in a horizontal plane is called:

- (A) Plunging
(B) **Swinging** (Correct Answer) (Chosen option)
(C) Transiting
(D) Centering

Question No.103

Marks: 1.00

_____ is the process of water being lost from leaves of plants.

- (A) Run off
 (B) Evapotranspiration
 (C) Precipitation
 (D) **Transpiration (Correct Answer)** (Chosen option)

Question No.104

Marks: 1.00

Bookmark

What is the head loss for fresh plain-sedimentation sludge?

- (A) It is equal to 7 times that of water
 (B) It is about equal to that of the water
 (C) It is about 9 times that of water
 (D) **It is about 1.5 to 4 times that of water (Correct Answer)**

Question No.105

Marks: 1.00

Bookmark

In centrifugal pump Speed ratio equation used is:

- (A) $K_u = \frac{u_2}{\sqrt{2gH_{mano}}}$ (Correct Answer) (Chosen option)
 (B) $K_u = \frac{u_2}{\sqrt{H_{mano}}}$
 (C) $K_u = \frac{u_2}{\sqrt{gH_{mano}}}$
 (D) $K_u = \frac{u}{\sqrt{2H_{mano}}}$

Question No.106

Marks: 1.00

Bookmark

Determine the depth of neutral axis of T-beam which have effective width of flange 1100 mm, depth of flange 100 mm, area of steel 2500 mm² of steel Fe500 and concrete M25. The width of web 300 mm and effective depth of 450 mm.

- (A) **144 mm (Correct Answer)** (Chosen option)
 (B) 200 mm
 (C) 70 mm
 (D) 110 mm

Question No.107

Marks: 1.00

Bookmark

The permissible limit of error in chaining for measurements over rough or somewhat hilly ground is 1 in _____

- (A) 2000
 (B) **250 (Correct Answer)** (Chosen option)
 (C) 500
 (D) 1000

Question No.108

Marks: 1.00

Bookmark

A diameter of horizontal pipe suddenly changes from 20 cm to 25 cm. Discharge through pipe is 350 lps. Calculate head loss when flow is reversed with same discharge.

- (A) $h_F = 3.165 \text{ m}$ (Correct Answer)
(B) $h_F = 3.165 \text{ cm}$
(C) $h_F = 3.165 \text{ m}^2$
(D) $h_F = 3.165 \text{ mm}$

Question No.109

Marks: 1.00

Bookmark

For a specific month pan evaporation 200 mm, crop coefficient is 0.5, calculate water requirement of crop in mm.

- (A) 120
(B) 100 (Correct Answer) (Chosen option)
(C) 50
(D) 110

Question No.110

Marks: 1.00

Bookmark

Modulus of resilience is the ratio of:

- (A) Longitudinal strain to lateral strain
(B) Square of Yield Stress to Modulus of Toughness
(C) Square of Yield Stress to Modulus of Elasticity (Chosen option)
(D) Ultimate Strength to Modulus of Elasticity (Correct Answer)

Question No.111

Marks: 1.00

Bookmark

Determine the minimum size of glass tubing that can be used to measure water level. The capillary rise tube does not exceed to 0.4 mm. (Take surface tension of water contact as 0.0735 N/m.)

- (A) $d=75 \text{ m}$
(B) $d=85 \text{ mm}$
(C) $d=55 \text{ mm}$
(D) $d=75 \text{ mm}$ (Correct Answer) (Chosen option)

Question No.112

Marks: 1.00

Bookmark

A pipe line 300 m long has slope of 1 in 100 and top end from 1.2 m diameter has higher end to 0.6 m diameter at lower end discharge of water flowing water 900 l/s. The pressure gauge fitted higher and lower indicate pressure of 7 N/cm² and 80 cm of mercury. Determine loss of head.

- (A) $h_L = 10 \text{ m}$
(B) $h_L = 2 \text{ m}$
(C) $h_L = 1.229 \text{ m}$ (Correct Answer) (Chosen option)
(D) $h_L = 5 \text{ m}$

Question No.113

Marks: 1.00

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A sieve analysis test is conducted on a sample having $D_{10}=0.115$, $D_{30}=0.53$ and $D_{60}=1.55$, then the value of coefficient of uniformity and coefficient of curvature are _____ respectively.

- (A) $C_u = 18.47$ and $C_c=3.57$
 (B) $C_u = 10.47$ and $C_c=5.57$
 (C) $C_u = 15.47$ and $C_c=4.57$
 (D) **$C_u = 13.47$ and $C_c=1.57$ (Correct Answer)** (Chosen option)

Question No.114

Marks: 1.00

Bookmark

The first method of road construction which proposed a subgrade to be compacted and prepared with a cross slope of 1 in 36 is:

- (A) Metcalf method
 (B) Tresaguet method
 (C) Telford method
 (D) **Macadam method (Correct Answer)** (Chosen option)

Question No.115

Marks: 1.00

Bookmark

The relation between Newton and Dyne is given by:

- (A) One Newton = 10^3 Dyne
 (B) **One Newton = 10^5 Dyne (Correct Answer)** (Chosen option)
 (C) One Newton = 10^4 Dyne
 (D) One Newton = 10^6 Dyne

Question No.116

Marks: 1.00

Bookmark

During the process of consolidation, the reduction in volume takes place due to _____ voids.

- (A) expulsion of air
 (B) addition of water
 (C) **expulsion of water (Correct Answer)** (Chosen option)
 (D) addition of air

Question No.117

Marks: 1.00

Bookmark

Dupit's equation is expressed as:

- (A) $\frac{L}{d^5} = \frac{L_1}{d_1^5} + \frac{L_2}{d_2^5} + \frac{L_3}{d_3^5}$
 (B) $\frac{L}{d^5} = \frac{L_1}{d_1^5} - \frac{L_2}{d_2^5} - \frac{L_3}{d_3^5}$
 (C)

$$\frac{L}{d^5} = \frac{L_1}{d_1^5} + \frac{L_2}{d_2^5}$$

- (D) $\frac{L}{d^5} = \frac{L_1}{d_1^5} + \frac{L_2}{d_2^5} + \frac{L_3}{d_3^5}$ (Correct Answer) (Chosen option)

Question No.118

Marks: 1.00

Bookmark

A vehicle is moving with a design speed of 100 kmph on a horizontal curve of radius 150 m. What is the length of transition curve if the width of the carriageway, $W = 7.5$ m, rate of super elevation, $e = 0.05$ and rate of introduction of super elevation, $N = 1$ in 150? Consider the pavement is rotated at the inner edge of the pavement.

- (A) 56.25 m (Correct Answer) (Chosen option)
(B) 66.25 m (Chosen option)
(C) 76.25 m
(D) 46.25 m

Question No.119

Marks: 1.00

Bookmark

When boundary is transition, δ' value lies between _____.

- (A) 0.25 to 6.0 (Correct Answer) (Chosen option)
(B) 0.30 to 6.03
(C) 0.25 to 5.9
(D) 0.15 to 7.3

Question No.120

Marks: 1.00

Bookmark

Secondary system of road classification includes:

- (A) Only National Highways (NH)
(B) State Highways (SH) and Major District Roads (MDR) (Correct Answer) (Chosen option)
(C) Other District Roads (ODR) and Village Roads (VR)
(D) Expressways and National Highways (NH)

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