Question No.1

Marks: 1.00

Bookmark

The optimistic time, most likely time and pessimistic time estimates for an activity are 6 days, 7 days and 8 days respectively. The expected completion time of this given activity is:

(A) ○ **7 days (Correct Answer)** (Chosen option)

(B) ○ 6 days

(C) ○ 9 days

(D) ○ 12 days

Question No.2

Marks: 1.00

Bookmark

A cantilever of length (l) carries a uniformly distributed load w N per unit length for the whole length. The shear force at the free end will be ___.

(A) ○ **zero (Correct Answer)**

(B) ○ wl/2

(C) ○ wl/4

(D) ○ wl (Chosen option)

Question No.3

Marks: 1.00

Bookmark

$P + \frac{1}{2}\rho V^2$ is called as _____

(A) ○ Dynamic pressure (Chosen option)

(B) ○ **Stagnation pressure (Correct Answer)**

(C) ○ Static pressure

(D) ○ Pressure

Question No.4

Marks: 1.00

Bookmark

As per MoRTH specification, the specified compaction requirement of highway subgrade is:

(A) ○ 90 percent (Chosen option)

(B) ○ 100 percent

(C) ○ **95 percent (Correct Answer)**

(D) ○ 80 percent

Question No.5

Marks: 1.00

Which of the following is INCORRECT for the characteristics and quality of a good Trap?

(A) ○ It should posses self-cleaning property

(B) ○ **The internal and external surface should be Hard (Correct Answer)** (Chosen option)

(C) ○ It should be made of some non-absorbent material

(D) ○ It provide sufficient water seal with large surface area

Question No.6   Marks: 1.00

The normal duration and normal cost of activity are 24 days and Rs. 50,000 respectively. The activity crash duration is 22 days and the indirect cost is Rs. 1000 per day. If the cost slope is Rs. 1500 per day, then the total cost of activity after the crashing will be:

(A) ○ Rs. 47,500

(B) ○ Rs. 54,500

(C) ○ **Rs. 51,000 (Correct Answer)** (Chosen option)

(D) ○ Rs. 45,500

Question No.7   Marks: 1.00

The study of a body in motion, when the forces which cause the motion are NOT considered is called:

(A) ○ Torque

(B) ○ **Kinematics (Correct Answer)** (Chosen option)

(C) ○ Kinetics

(D) ○ Statics

Question No.8   Marks: 1.00

AOA and AON are:

(A) ○ **Network Techniques (Correct Answer)** (Chosen option)

(B) ○ Quality measurement techniques

(C) ○ Safety assessment techniques

(D) ○ Cost estimation techniques

Question No.9   Marks: 1.00

Lacey's silt theory is not applicable when:

(A) ○ **The canal is lined (Correct Answer)**

(B) ○ Silt amount is of the order 500 ppm

(C) ○ Silt grade consists of pure sand

(D) ○ Discharge is constant (Chosen option)

Question No.10   Marks: 1.00

In flat collar bearing, why is the number of collars provided to carry a fixed axial load?

(A) ○ To increase intensity of pressure

(B) ○ To increase frictional torque

(C) ○ **To decrease intensity of pressure (Correct Answer)**

(D) ○ To decrease frictional torque

Question No.11   Marks: 1.00
                                                                    Bookmark

Which of the following is NOT a type of contract?
(A) ○ **Open tender (Correct Answer)** (Chosen option)
(B) ○ Item rate contract
(C) ○ Lump-sum contract
(D) ○ BOT

Question No.12   Marks: 1.00
                                                                    Bookmark

The expression used to calculate water hammer pressure p_w is:
(A) ○ **$V*E_w/E_s$ (Correct Answer)**
(B) ○ CDAp pv2 /2 (Chosen option)
(C) ○ N0e -kt
(D) ○ (fLU2)/(2gd)

Question No.13   Marks: 1.00
                                                                    Bookmark

Which of the following has largest dimension of a rail?
(A) ○ **Height (Correct Answer)** (Chosen option)
(B) ○ Foot width
(C) ○ Cross-section width
(D) ○ Head width

Question No.14   Marks: 1.00
                                                                    Bookmark

How much track is covered by B.G in India?
(A) ○ **More than 90% (Correct Answer)**
(B) ○ 85 to 90 %
(C) ○ 70 - 80 %
(D) ○ 50-60% (Chosen option)

Question No.15   Marks: 1.00
                                                                    Bookmark

Shear stress at the centre of beam is:
(A) ○ Dependent on concrete grade
(B) ○ Theoretically zero but practically not
(C) ○ Non-zero (Chosen option)
(D) ○ **Practically zero (Correct Answer)**

Question No.16   Marks: 1.00
                                                                    Bookmark

As Error increases, aspect ratio:
(A) ○ L increases (Chosen option)
(B) ○ L/D increases
(C) ○ D decreases

(D) ○ **L/D decreases (Correct Answer)**

Question No.17   Marks: 1.00
Bookmark

According to the boundary layer theory, the flow of fluid in the neighbourhood of the solid boundary may be divided into _____

(A) ○ one

(B) ○ **two (Correct Answer)**

(C) ○ three (Chosen option)

(D) ○ four

Question No.18   Marks: 1.00
Bookmark

The torsional reinforcement required when both the meeting edges of slab are continuous is:

(A) ○ **No reinforcement is required (Correct Answer)** (Chosen option)

(B) ○ Same as area of flexural steel required

(C) ○ 0.375 times of flexural steel required

(D) ○ 0.75 times of area of flexural steel required

Question No.19   Marks: 1.00
Bookmark

What is the angle made by this off taking channel with parent channel?
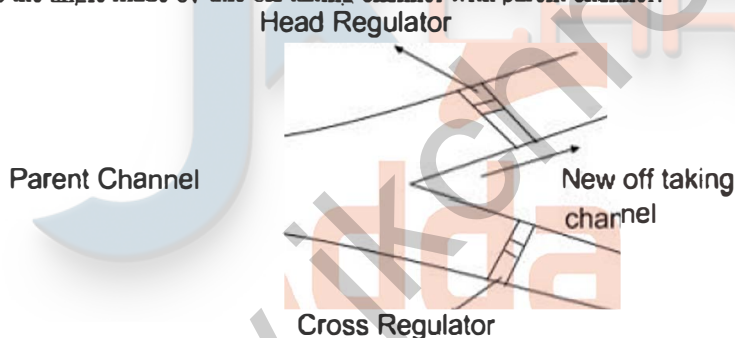
(A) ○ **Zero degrees (Correct Answer)**

(B) ○ 60 degrees

(C) ○ 30 degrees

(D) ○ 15 degrees (Chosen option)

Question No.20   Marks: 1.00
Bookmark

Reynolds number is applicable to:

(A) ○ Laminar flow and Linear flow (Chosen option)

(B) ○ Creeping flow and Turbulent flow

(C) ○ **Creeping flow (Correct Answer)**

(D) ○ Linear flow and Creeping flow

Question No.21   Marks: 1.00
Bookmark

Which among the following claims about the ultrasonic test is/are right?

(A) ○ The created waves are detrimental to one's health.

(B) ○ Complex shapes can be detected quickly.

(C) ○ **Ultrasonic testing equipment is lightweight and portable. (Correct Answer)**

(D) ○ The created waves are detrimental to one's health, and intricate shapes may be easily scanned. (Chosen option)

Question No.22   Marks: 1.00
                                                          Bookmark

Ψ Exists for

(A) ○ **rotational flow (Correct Answer)** (Chosen option)

(B) ○ trapezoidal flow

(C) ○ rectangular flow

(D) ○ circular flow

Question No.23   Marks: 1.00
                                                          Bookmark

If L is the length measured along the curve from the tangent point and R is the radius of curvature at the point as per the fundamental requirement of a transition curve the relation between these two is:

(A) ○ L = 2R

(B) ○ R/L = constant

(C) ○ **LR = constant (Correct Answer)**

(D) ○ L/R = constant (Chosen option)

Question No.24   Marks: 1.00
                                                          Bookmark

Which of following contracts has contractor and government's share as 60% and 40% of total project's cost respectively?

(A) ○ **HAM contract (Correct Answer)**

(B) ○ BOT contract

(C) ○ EPC contract

(D) ○ Item rate contract

Question No.25   Marks: 1.00
                                                          Bookmark

Which type of soil is benefited by using tile drainage?

(A) ○ Dry Soils (Chosen option)

(B) ○ Black Soils

(C) ○ Red Soils

(D) ○ **Wet Soils (Correct Answer)**

Question No.26   Marks: 1.00
                                                          Bookmark

The point of contraflexure definitely occurs in _____ beams.

(A) ○ continuous

(B) ○ **overhanging (Correct Answer)** (Chosen option)

(C) ○ simply supported

(D) ○ cantilever

Question No.27 Marks: 1.00
Bookmark

The odour of the water or the waste-water can be measured by a term called:
(A) ○ Turbidity
(B) ○ **Threshold Odour Number (Correct Answer)** (Chosen option)
(C) ○ B.O.D
(D) ○ C.O.D

Question No.28 Marks: 1.00
Bookmark

Which instrument moves at same speed in extension and retracting operation?
(A) ○ **Piston (Correct Answer)**
(B) ○ Chamber
(C) ○ Suction
(D) ○ Shaft (Chosen option)

Question No.29 Marks: 1.00
Bookmark

The principle involved in movable hair tacheometry is:
(A) ○ Trigonometry is used for measurement of distance.
(B) ○ **By moving the stadia wires a constant intercept on the staff can be obtained. (Correct Answer)**
(C) ○ Distance can be estimated by measuring two vertical angles.
(D) ○ Distance is proportional to the intercepts on a stadia rod. (Chosen option)

Question No.30 Marks: 1.00
Bookmark

What is the acceptable outdoor noise level for industrial areas, as per the IS-code 4954-1968?
(A) ○ **50-60 dBA (Correct Answer)** (Chosen option)
(B) ○ 40-50 dBA
(C) ○ 35-45 dBA
(D) ○ 25-35 dBA

Question No.31 Marks: 1.00
Bookmark

The primary system of road classification includes:
(A) ○ **Expressways and National Highways (Correct Answer)** (Chosen option)
(B) ○ Village roads and Other District Roads
(C) ○ Other District Roads and Village Roads
(D) ○ State Highways and Major District Roads

Question No.32 Marks: 1.00
Bookmark

Identify the CORRECT statement about Simply Supported beam.
(A) ○ BM – Max at supports, SF – Zero at supports
(B) ○ BM – Zero at supports, SF – Zero at supports

(C) ○ BM – Max at supports, SF – Max at supports

(D) ○ **BM – Zero at supports, SF – Max at supports (Correct Answer)** (Chosen option)

Question No.33

Marks: 1.00
Bookmark

Which is the most preferable alignment of the bridge?

(A) ○ Parabola (Chosen option)

(B) ○ **Square (Correct Answer)**

(C) ○ Skew

(D) ○ Curved

Question No.34

Marks: 1.00
Bookmark

The length of a line measured with a 30 m chain is 800.64 m. Afterwards it is found that the chain is 0.05 m too long. The true length of the line is:

(A) ○ 801.976 m (Chosen option)

(B) ○ 799.305 m

(C) ○ **801.974 m (Correct Answer)**

(D) ○ 799.307 m

Question No.35

Marks: 1.00
Bookmark

The possibility of formation of voids in concrete can be reduced by using water-cement ratio as:

(A) ○ Steady

(B) ○ Maximum

(C) ○ Uniform (Chosen option)

(D) ○ **Minimum (Correct Answer)**

Question No.36

Marks: 1.00
Bookmark

As per IS code, calculate the negative moment coefficient in the case of the two-way slab, if the positive moment coefficient is 0.3.

(A) ○ **0.55 (Correct Answer)**

(B) ○ 0.35

(C) ○ 0.45

(D) ○ 0.65

Question No.37

Marks: 1.00
Bookmark

In compression, as per IS 456:2000, the average bond stress in the reinforcing bar should be increased by _____%.

(A) ○ 20

(B) ○ 40

(C) ○ 60

(D) ○ **25 (Correct Answer)** (Chosen option)

Question No.38

Marks: 1.00

Flow formula for open channel (Chezei's formula) V=C√Ri, where Chezy's coefficient C is given by which formula?

(A) ○ Manning's Formula

(B) ○ Darcy's Formula **(Chosen option)**

(C) ○ Hazens William's formula

(D) ○ **Kutter's formula (Correct Answer)**

Question No.39

If the liquid limit and plastic limit of the soil sample is 58% and 28% respectively then its plasticity index is _____.

(A) ○ 33.5%

(B) ○ 47.5%

(C) ○ **30% (Correct Answer) (Chosen option)**

(D) ○ 20%

Question No.40

Find the compaction factor of concrete using the following data:
Weight of empty cylinder (W1) = 10 Kg
Weight of empty cylinder + Weight of free fall concrete (W2) = 15 Kg
Weight of empty cylinder + Weight of hand compacted concrete (W3) = 17 Kg

(A) ○ 0.78

(B) ○ 0.81

(C) ○ **0.71 (Correct Answer) (Chosen option)**

(D) ○ 0.68

Question No.41

Verify whether the following functions are valid potential functions.
(i) $\emptyset = A(X^2 - Y^2)$
(ii) $\emptyset = A \cos x$

(A) ○ Both are valid potential functions

(B) ○ Both are not valid potential functions **(Chosen option)**

(C) ○ (i) Is not a valid function (ii) Is a valid potential function

(D) ○ **(i) Is a valid potential function (ii) Not a valid function (Correct Answer)**

Question No.42

Difference in elevation between two successive contour lines is called:

(A) ○ Horizontal equivalent

(B) ○ **Contour interval (Correct Answer) (Chosen option)**

(C) ○ Contour map

(D) ○ Contour line

Question No.43

The bitumen emulsion is classified as:
(A) ○ Medium curing
(B) ○ Rapid curing
(C) ○ Slow curing
(D) ○ **Anionic and cationic (Correct Answer)** (Chosen option)

Question No.44   Marks: 1.00
                                                      Bookmark

The period after which the entire area will start contributing to run-off is called the
_____

(A) ○ **time of concentration (Correct Answer)** (Chosen option)
(B) ○ gutter flow time
(C) ○ dispersion factor
(D) ○ time of equilibrium

Question No.45   Marks: 1.00
                                                      Bookmark

Design the rate of superelevation for horizontal curve of radius 400 m for a mixed traffic
condition, having a speed of 80 Kmph.
(A) ○ 0.05
(B) ○ **0.07 (Correct Answer)** (Chosen option)
(C) ○ 1
(D) ○ 0.08

Question No.46   Marks: 1.00
                                                      Bookmark

Which of the following structures is temporary for bridge construction?
(A) ○ Cables
(B) ○ **Cofferdam (Correct Answer)**
(C) ○ Deck
(D) ○ Soffit (Chosen option)

Question No.47   Marks: 1.00
                                                      Bookmark

The drainage water is sometimes allowed to join the canal water to augment canal
supplies through a hydraulic structure called:
(A) ○ **Canal inlet (Correct Answer)** (Chosen option)
(B) ○ Canal outlet
(C) ○ Module
(D) ○ Level crossings

Question No.48   Marks: 1.00
                                                      Bookmark

If B = thickness of aquifer , K = coefficient of permeability then coefficient of
transmissibility (T) is given as:
(A) ○ T = B/K
(B) ○ T= K/B
(C) ○ **T = B.K (Correct Answer)** (Chosen option)
(D) ○ T = 2B/K

Question No.49

Marks: 1.00
Bookmark

One-way slabs are supported by _____ across the entire width.
- (A) ○ **bearing walls (Correct Answer)**
- (B) ○ column
- (C) ○ footing
- (D) ○ props (Chosen option)

Question No.50

Marks: 1.00
Bookmark

Shear strength of RCC beam can be increased by providing:
- (A) ○ flaky aggregates
- (B) ○ **stirrups (Correct Answer)** (Chosen option)
- (C) ○ Compression reinforcements
- (D) ○ TMT bars

Question No.51

Marks: 1.00
Bookmark

The constant head permeability test is most suitable for _____ type of soil.
- (A) ○ organic
- (B) ○ clayey
- (C) ○ silty
- (D) ○ **coarse grained (Correct Answer)** (Chosen option)

Question No.52

Marks: 1.00
Bookmark

The ratio of the rate of change of discharge of an outlet and parent channel is known as
_____
- (A) ○ efficiency
- (B) ○ **flexibility (Correct Answer)** (Chosen option)
- (C) ○ modular limit
- (D) ○ sensitivity

Question No.53

Marks: 1.00
Bookmark

A contour map which has higher elevations inside is the example of:
- (A) ○ Valley
- (B) ○ **Hillock (Correct Answer)** (Chosen option)
- (C) ○ Steep slope
- (D) ○ Pond

Question No.54

Marks: 1.00
Bookmark

In which year coagulation of water with sulphate of alumina was adapted practically?
- (A) ○ **1881 (Correct Answer)**
- (B) ○ 1854
- (C) ○ 1830
- ○

(D) 1876 (Chosen option)

Question No.55

Marks: 1.00
Bookmark

The minimum width of the narrow gauge is:
(A) ◯ 900 mm
(B) ◯ **610 mm (Correct Answer)** (Chosen option)
(C) ◯ 700 mm
(D) ◯ 800 mm

Question No.56

Marks: 1.00
Bookmark

Component of the bridge above the level of bearing is known as:
(A) ◯ Adjoining structure
(B) ◯ **Superstructure (Correct Answer)** (Chosen option)
(C) ◯ Masonry structure
(D) ◯ Sub-structure

Question No.57

Marks: 1.00
Bookmark

Measurement of steel grills is done in terms of:
(A) ◯ Volume
(B) ◯ Area (Chosen option)
(C) ◯ **Weight (Correct Answer)**
(D) ◯ Length

Question No.58

Marks: 1.00
Bookmark

A binding legal agreement is a mutual arrangement between two or more persons that is enforceable by law is called _____
(A) ◯ mutual fund
(B) ◯ loan
(C) ◯ **contract (Correct Answer)** (Chosen option)
(D) ◯ job

Question No.59

Marks: 1.00
Bookmark

Which of the following cash books has only one account that is a cash account?
(A) ◯ Triple column cash book
(B) ◯ Petty cash book
(C) ◯ **Simple cash book (Correct Answer)** (Chosen option)
(D) ◯ Double column cash book

Question No.60

Marks: 1.00
Bookmark

Find the ruling minimum radius of horizontal curve for a design speed of 80 Kmph. (assuming e=0.07 and f=0.15)
(A) ◯ **229 m (Correct Answer)** (Chosen option)
(B) ◯ 339 m

(C) ○ 250 m

(D) ○ 439 m

Question No.61
Marks: 1.00
Bookmark

The equation for the determination of compression index for the remoulded soil (For distributed low to medium sensitive soil) is given by:

(A) ○ [ ] **(Correct Answer) (Chosen option)**

(B) ○ $C_c = 0.007(w_L - 20\%)$

(C) ○ $C_c = 0.009(w_L - 10\%)$

(D) ○ $C_c = 0.007(w_L - 30\%)$

Question No.62
Marks: 1.00
Bookmark

For a static equilibrium in a space structure, the number of independent equations to be satisfied is:

(A) ○ **6 (Correct Answer) (Chosen option)**

(B) ○ 3

(C) ○ 2

(D) ○ 4

Question No.63
Marks: 1.00
Bookmark

The ratio of increase in length to the original length is known as:

(A) ○ Compressive strain

(B) ○ **Tensile strain (Correct Answer) (Chosen option)**

(C) ○ Tensile stress

(D) ○ Compressive stress

Question No.64
Marks: 1.00
Bookmark

What is the size of "Soil Pipe and Vent Pipe" commonly adopted for house drains in average conditions?

(A) ○ **100 mm, 50 mm (Correct Answer)**

(B) ○ 210 mm, 75 mm

(C) ○ 70 mm, 32 mm (Chosen option)

(D) ○ 400 mm, 20 mm

Question No.65
Marks: 1.00
Bookmark

The whole circle bearing of a line measured is 135°. The reduced bearing of line is:

(A) ○ 45° NE

(B) ○ 135° SE

(C) ○ **45⁰ SE (Correct Answer)** (Chosen option)

(D) ○ 135⁰ NE

Question No.66

Marks: 1.00

Bookmark

Choose the INCORRECT statement.

(A) ○ **Nominal mix considers the properties of different materials used. (Correct Answer)**

(B) ○ Concrete is a brittle material.

(C) ○ Design mix is used for M25 and above concrete grades. (Chosen option)

(D) ○ Aggregates are inactive materials that increase the volume of concrete.

Question No.67

Marks: 1.00

Bookmark

Line joining equal rain fall readings on map is called _____

(A) ○ isosceles

(B) ○ **isohytal (Correct Answer)** (Chosen option)

(C) ○ isochrones

(D) ○ isobar

Question No.68

Marks: 1.00

Bookmark

What is the usual height of the bridge above the high flood level (HFL)?

(A) ○ 4.5 to 6 m

(B) ○ 6 to 7 m (Chosen option)

(C) ○ 3 to 3.3 m

(D) ○ **1.2 to 1.5 m (Correct Answer)**

Question No.69

Marks: 1.00

Bookmark

What is the magnetic declination if the sum of the magnetic bearing at a place at known in southern hemisphere is 167⁰?

(A) ○ 23⁰ S

(B) ○ **13⁰ E (Correct Answer)** (Chosen option)

(C) ○ 77⁰ N

(D) ○ 13⁰ W

Question No.70

Marks: 1.00

Bookmark

A two-lane highway with design speed of 80 kmph has horizontal curve of radius 460 m. What is the rate of superelevation considering mixed traffic condition or 75% of design speed?
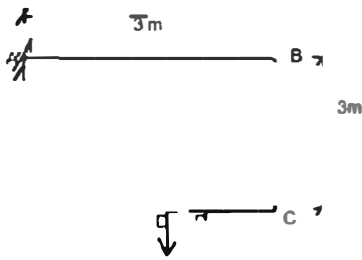
(A) ○ 0.05

(B) ○ 0.04

(C) ○ **0.06 (Correct Answer)** (Chosen option)

(D) ○ 0.03

Question No.71

Marks: 1.00

Find the deflection at D.

(A) ○ 40mm

(B) ○ 4mm

(C) ○ 4.4mm

(D) ○ **44mm (Correct Answer)**

Question No.72

The type of soil sample collected using wash boring technique is _____

(A) ○ representative (Chosen option)

(B) ○ zero-representative

(C) ○ **undisturbed (Correct Answer)**

(D) ○ zero disturbed

Question No.73

In setting up of plane table at a point P, the corresponding point on the plan was not accurately centered above the point P. If the displacement of P was 20 cm in a direction at right angles to the ray, how much on the plan would be the consequent displacement of a point from its true position, if scale is 1 cm = 100 m?

(A) ○ 0.002 mm (Chosen option)

(B) ○ 2 mm

(C) ○ 0.2 mm

(D) ○ **0.02 mm (Correct Answer)**

Question No.74

Navier – stokes equation applies to:

(A) ○ Laminar flow between concentric rotating cylinders

(B) ○ **Laminar flow in pipe (Correct Answer)** (Chosen option)

(C) ○ Laminar flow in sperical pipe

(D) ○ Laminar directional flow between stationary parallel plates

Question No.75

A bar is subjected to a uniform tensile stress of 100 N/mm^2. Find the intensity of normal stress on a plane the normal to which is inclined 30° to the axis of the bar:

(A) ○ 100 N/mm^2

(B) ○ 80 N/mm^2

(C) ○ 60 N/mm^2

(D) ○ **75 N/mm^2 (Correct Answer)** (Chosen option)

Question No.76 Marks: 1.00
Bookmark

A narrow track is made along the alignment of the hill road to enable access for inspection, collection of data called:

(A) ○ **Trace cut (Correct Answer)** (Chosen option)

(B) ○ Open cut

(C) ○ Open tunnel

(D) ○ Close Conduit

Question No.77 Marks: 1.00
Bookmark

The dilatancy correction to the standard penetration number is given by:

(A) ○
$$N_c = 15 + \frac{1}{2}(N_R - 15)$$ **(Correct Answer)** (Chosen option)

(B) ○
$$N_c = 15 - \frac{1}{2}(15 - N_R)$$

(C) ○
$$N_c = 15 - \frac{1}{2}(N_R - 15)$$

(D) ○
$$N_c = 25 - \frac{1}{2}(15 - N_R)$$

Question No.78 Marks: 1.00
Bookmark

R-charts are used for:

(A) ○ **Variables (Correct Answer)**

(B) ○ Reliability (Chosen option)

(C) ○ Maintainability

(D) ○ Attributes

Question No.79 Marks: 1.00
Bookmark

Dimension of specific heat is:

(A) ○ $L^2 t^{-2} T^1$

(B) ○ $L^2 t^{-2} T^{-1}$ **(Correct Answer)**

(C) ○ $L^2 t^{-2} T^3$

(D) ○ $L^{-2} t^2 T^1$

Question No.80 Marks: 1.00
Bookmark

The resultant stress on an oblique plane at an angle θ to the cross section of a body which is subjected to a direct tensile stress is:

(A) ○ $\sigma \cos^2\theta$

(B) ○ **σ cos θ (Correct Answer)**
(C) ○ σ cos 2θ (Chosen option)
(D) ○ $\cos^2\theta$

Question No.81
Marks: 1.00
Bookmark

Which one of the following operations is not done by the theodolite?
(A) ○ **Measuring only horizontal angles (Correct Answer)** (Chosen option)
(B) ○ Setting line between given lines
(C) ○ Prolonging a line
(D) ○ Finding intersection of points

Question No.82
Marks: 1.00
Bookmark

For steady laminar flow through a conical pipe, determine expression for pressure loss across it.

(A) ○ $-\dfrac{128\mu Q}{3\pi(D_1 - D_2)}$ (Chosen option)

(B) ○ $\dfrac{128\mu Q}{3\pi(D_1 + D_2)} - \left[\dfrac{1}{D_2^3}\right]$

(C) ○ $\dfrac{128\mu Q}{3\pi(D_1 - D_2)}\left[\dfrac{1}{D_2^3}\right]$

(D) ○ **(Correct Answer)**

Question No.83
Marks: 1.00
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If the thickness of the wall of the cylindrical vessel is less than _____ of its internal diameter, the cylindrical vessel is known as a thin cylinder.
(A) ○ 1/4
(B) ○ 1/10 (Chosen option)
(C) ○ 1/15
(D) ○ **1/20 (Correct Answer)**

Question No.84
Marks: 1.00
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The rate of rise or fall along the length of road with respect to the horizontal is called:
(A) ○ Superelevation
(B) ○ **Gradient (Correct Answer)** (Chosen option)
(C) ○ Camber
(D) ○ Grade compensation

Question No.85
Marks: 1.00
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Which of the following organization structures requires high degree of specialization?
(A) ○ Harmony structure
(B) ○ **Functional structure (Correct Answer)** (Chosen option)
(C) ○ Coordinated structure
(D) ○ Divisional structure

Question No.86   Marks: 1.00
                                                      Bookmark

As per Indian standards, the height and mass of the rammer used in core cutter test is
_____ and_____ respectively.
(A) ○ 2.5 kg, 310 mm (Chosen option)
(B) ○ **9 kg, 900 mm (Correct Answer)**
(C) ○ 7.5 kg, 510 mm
(D) ○ 4.89 kg, 450 mm

Question No.87   Marks: 1.00
                                                      Bookmark

The base width of a solid gravity dam is 35 m and the specific gravity of dam material is
2.45. What is the approximate allowable height of the dam having an elementary profile
without considering the uplift?
(A) ○ **54.80 m (Correct Answer)**
(B) ○ 64.68 m
(C) ○ 80 m
(D) ○ 164 m

Question No.88   Marks: 1.00
                                                      Bookmark

The sudden contraction loss in Cc is given by _____
(A) ○
(B) ○ **(Correct Answer)** (Chosen option)
(C) ○
(D) ○

Question No.89   Marks: 1.00
                                                      Bookmark

Which of the following is the first metro system of India?
(A) ○ Mumbai metro
(B) ○ Chennai metro
(C) ○ Delhi metro
(D) ○ **Kolkata metro (Correct Answer)** (Chosen option)

Question No.90   Marks: 1.00
                                                      Bookmark

The type of road pattern adopted by city roads of Chandigarh is:
(A) ○ Radial or star and block pattern
(B) ○ **Rectangle or block pattern (Correct Answer)** (Chosen option)
(C) ○ Hexagonal pattern
(D) ○ Radial or star and grid pattern

Question No.91   Marks: 1.00
                                                      Bookmark

If N is the number sides of the traverse, the sum of measured interior angles should be
equal to:
(A) ○ **(2N-4) right angles (Correct Answer)** (Chosen option)

(B) ○ (2N-2) right angles

(C) ○ (2N-6) right angles

(D) ○ (2N-8) right angles

Question No.92

Marks: 1.00
Bookmark

The protoplasm of most living cells contains _____ of water.

(A) ○ 40%

(B) ○ 30%

(C) ○ 50%

(D) ○ **80% (Correct Answer)**

Question No.93

Marks: 1.00
Bookmark

Select the INCORRECT statement.

(A) ○ Pre-stress loss due to elastic shortening of concrete is m × f_c.

(B) ○ The decrease in stress in steel at a constant strain is called relaxation in steel.

(C) ○ A cracked pre-stressed concrete beam behaves as a reinforced cement concrete beam.

(D) ○ **The minimum concrete grade for pre-tensioning and post-tensioning is M30. (Correct Answer)** (Chosen option)

Question No.94

Marks: 1.00
Bookmark

Controlling and planning are:

(A) ○ **Interdependent and interrelated (Correct Answer)** (Chosen option)

(B) ○ Interrelated

(C) ○ Interdependent

(D) ○ Interesting

Question No.95

Marks: 1.00
Bookmark

Shear Stress induced in a shaft varies:

(A) ○ **Linearly with zero at the centre to maximum at extreme fibre of the shaft (Correct Answer)** (Chosen option)

(B) ○ Linearly with maximum at the centre to Zero at extreme fibre of the shaft

(C) ○ Non-linear with zero at centre and max at the extreme fibre

(D) ○ Linear with non-zero at centre and max at the extreme fibre

Question No.96

Marks: 1.00
Bookmark

Froude model law is based on:

(A) ○ Weber number

(B) ○ Reyonld's number

(C) ○ Euler number

(D) ○ **Froude number (Correct Answer)** (Chosen option)

Question No.97

Marks: 1.00

As per IS 456:2000, the equivalent shear in torsion can be calculated as:
(A) ○ $V_e = B + 1.6 \times (T/V)$
(B) ○ $V_e = T + 1.6 \times (V/B)$
(C) ○ **$V_e = V + 1.6 \times (T/B)$ (Correct Answer)** (Chosen option)
(D) ○ $V_e = V + 1.8 \times (T/B)$

Question No.98

In the bending stress equation $M/I = f/y = E/R$, which of the following is INCORRECT?
(A) ○ M represents bending moment
(B) ○ **y represents the total depth of the section (Correct Answer)** (Chosen option)
(C) ○ f represents bending stress
(D) ○ 1/R represents radius of curvature

Question No.99

Capitalized value of property is the product of:
(A) ○ Annual income and interest
(B) ○ Annual income and sinking fund
(C) ○ Annual income and annuity
(D) ○ **Annual income and year's purchase (Correct Answer)** (Chosen option)

Question No.100

Determine ultimate BOD for sewage having 5-day BOD at 20°C as 180 ppm. Assume the de-oxygenation constant as 0.8 per day.
(A) ○ $L_0 = 195$ mg/l
(B) ○ **$L_0 = 180$ ppm (Correct Answer)**
(C) ○ $L_0 = 220$ ppm (Chosen option)
(D) ○ $L_0 = 200$ mg/l

Question No.101

The time related to minimum total project cost is:
(A) ○ Normal time
(B) ○ Crash time
(C) ○ Optimistic time (Chosen option)
(D) ○ **Between normal time and crash time (Correct Answer)**

Question No.102

The water content corresponding to maximum dry density is called
(A) ○ Zero air void
(B) ○ **Optimum water content (Correct Answer)** (Chosen option)
(C) ○ Moisture content

(D) ◯ Critical water content

Question No.103   Marks: 1.00
                                       Bookmark

If a foundation of size 18 m x 36 m, exerts a uniform pressure of 180 kN/mm^2 on the soil mass with E value as 45 MN/m^2, Influence value 1, Poisson's ratio 0.5, then the immediate settlement is:

(A) ◯ 120 mm

(B) ◯ **54 mm (Correct Answer)**

(C) ◯ 28 mm

(D) ◯ 220 mm

Question No.104   Marks: 1.00
                                       Bookmark

The ratio of change of volume of body to the original volume is known as _____

(A) ◯ **volumetric strain (Correct Answer)** (Chosen option)

(B) ◯ strain

(C) ◯ elastic strain

(D) ◯ stress

Question No.105   Marks: 1.00
                                       Bookmark

The Reynold number is less than 0.2, then flow pattern is:

(A) ◯ **Symmetrical (Correct Answer)**

(B) ◯ Nearly different

(C) ◯ Reduce (Chosen option)

(D) ◯ Unsymmetrical

Question No.106   Marks: 1.00
                                       Bookmark

What characteristic strength of concrete is taken in limit state method?

(A) ◯ **0.67 fck (Correct Answer)**

(B) ◯ 0.36fck

(C) ◯ 0.22fck

(D) ◯ 0.45fck (Chosen option)

Question No.107   Marks: 1.00
                                       Bookmark

The cost associated with defective products produced is called:

(A) ◯ Cost of scrap (Chosen option)

(B) ◯ Cost of appraisal

(C) ◯ **Internal and external failure cost (Correct Answer)**

(D) ◯ Cost of prevention

Question No.108   Marks: 1.00
                                       Bookmark

Terzaghi's ultimate bearing capacity equation for circular footing is given by:

(A) ◯ $q_{ult} = 1.3CN_c + \gamma DN_q + 0.5\,\gamma BN_\gamma$

(B) ○ $q_{ult} = CN_C + \gamma DN_q + 0.5\,\gamma BN_\gamma$

(C) ○

   $q_{ult} = 1.3CN_C + \gamma DN_q + 0.4\,\gamma BN_\gamma$

(D) ○

   $q_{ult} = 1.3CN_C + \gamma DN_q + 0.3\,\gamma BN_\gamma$ **(Correct Answer) (Chosen option)**

Question No.109   Marks: 1.00

Bookmark

The chart which is used to monitor the variable is:

(A) ○   P-chart

(B) ○   **Range chart (Correct Answer)**

(C) ○   C-chart

(D) ○   Q-chart

Question No.110   Marks: 1.00

Bookmark

_____ cable properly counter balances the uniformly distributed load (UDL).

(A) ○   **Parabolic (Correct Answer) (Chosen option)**

(B) ○   Elliptic

(C) ○   Concentric

(D) ○   Eccentric

Question No.111   Marks: 1.00

Bookmark

Coefficient of friction μ is the ratio of:

(A) ○   Resultant and normal reaction

(B) ○   Applied Force and Normal Reaction

(C) ○   Frictional Force and Resultant

(D) ○   **Frictional Force and Normal Reaction (Correct Answer)** (Chosen option)

Question No.112   Marks: 1.00

Bookmark

What is the name given to the drains used in depressions?

(A) ○   **Shallow Surface Drains (Correct Answer)**

(B) ○   Deep Surface Drains (Chosen option)

(C) ○   Drains

(D) ○   Open Drains

Question No.113   Marks: 1.00

Bookmark

According to von –karman equation quantity of hydrodynamic force (P) acting on dam is:

(A) ○   **P = 0.555 Kh Yw H^2 (Correct Answer)**

(B) ○   P = 0.655 Kh Yw H^2

(C) ○   P = 0.75 Kh Yw H^2

(D) ○   P = 0.5 Kh Yw H

Question No.114   Marks: 1.00

The standard loads used for calculation of CBR are:
(A) ○ 1870 kg at 2.5 mm penetration and 2555 kg at 5.0 mm penetration
(B) ○ 1470 kg at 2.5 mm penetration and 2855 kg at 5.0 mm penetration
(C) ○ 1570 kg at 2.5 mm penetration and 2655 kg at 5.0 mm penetration
(D) ○ **1370 kg at 2.5 mm penetration and 2055 kg at 5.0 mm penetration (Correct Answer)** (Chosen option)

Question No.115

The gauge of a railway track is defined as:
(A) ○ The distance between two outer faces of two-track rails
(B) ○ The distance between sleepers.
(C) ○ **The clear distance between inner faces of two-track rails (Correct Answer)** (Chosen option)
(D) ○ The distance between inner face of one rail and outer face of another rail of the track

Question No.116

Movable bridges are constructed across _____
(A) ○ streams
(B) ○ dry valley
(C) ○ Highway
(D) ○ **channels (Correct Answer)** (Chosen option)

Question No.117

When a solid body is immersed in a flowing fluid, there is a narrow region of the fluid in the neighbourhood of the solid, where the velocity of fluid varies from zero to free stream velocity is known as:
(A) ○ Boundary layer thickness (Chosen option)
(B) ○ **Boundary layer (Correct Answer)**
(C) ○ Displacement thickness
(D) ○ Laminar boundary layer

Question No.118

The given soil sample is having porosity value of 30% and degree of saturation 78%, then the percentage air voids is _____.
(A) ○ 11.6%
(B) ○ **6.6% (Correct Answer)** (Chosen option)
(C) ○ 8.3%
(D) ○ 3.2%

Question No.119

Unit of Strain is:
(A) ○ **No unit (Correct Answer)** (Chosen option)
(B) ○ N

(C) ○ N/mm^2

(D) ○ N-mm

Question No.120   Marks: 1.00

Bookmark

In RCC design, which of the following loads is NOT considered with earthquake load?

(A) ○ Imposed load

(B) ○ Live load (Chosen option)

(C) ○ Snow load

(D) ○ **Wind load (Correct Answer)**

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