Question No.1   Marks: 1.00
                                                                                 Bookmark

Calculate the modulus of rigidity of a cylinder of diameter 25 mm and length 1.2 m if the longitudinal strain in the bar is 4 times the lateral strain. $E = 2 \times 10^5$ N/mm^2.

(A) ◯ **0.8 $\times 10^5$ N/mm^2 (Correct Answer) (Chosen option)**

(B) ◯ 0.9×10^5 N/mm^2

(C) ◯ 0.7×10^5 N/mm^2

(D) ◯ 1×10^5 N/mm^2

Question No.2   Marks: 1.00
                                                                                 Bookmark

Specific gravity of bitumen binder is in the range of:

(A) ◯ 1.5 to 2.0

(B) ◯ **0.97 to 1.02 (Correct Answer) (Chosen option)**

(C) ◯ 1.8 to 2.0

(D) ◯ 0.5 to 0.97

Question No.3   Marks: 1.00
                                                                                 Bookmark

The seepage loss in cm^3/sec for a hydraulic structure, if the flow net contains 5 flow lines and 9 equipotential lines and the head causing flow is 20 m, k= 2.6×10^{-6} cm/sec is:

(A) ◯ 1.88×10^{-3}

(B) ◯ 1.68×10^{-5} (Chosen option)

(C) ◯ **2.88×10^{-5} (Correct Answer)**

(D) ◯ 2.50×10^{-4}

Question No.4   Marks: 1.00
                                                                                 Bookmark

The plinth area of building does NOT include:

(A) ◯ **Cantilevered porch (Correct Answer) (Chosen option)**

(B) ◯ Carpet area

(C) ◯ Lift and landing

(D) ◯ Walls standing on floor level

Question No.5   Marks: 1.00

The change in moment of momentum of fluid due to flow along a curved path results in:
(A) ○ **Torque (Correct Answer)**
(B) ○ Change in the total energy
(C) ○ Change in pressure
(D) ○ Change in velocity (Chosen option)

Question No.6

Choose the CORRECT statement for the reception signal.
(A) ○ The reception signal is neither Starter nor outer signal
(B) ○ The reception signal is starter only
(C) ○ **The reception signal is both the starter and outer signal (Correct Answer)** (Chosen option)
(D) ○ The reception signal is outer signal only

Question No.7

_____ float is calculated as the difference between the maximum amount of time available and the actual amount of time required to complete the activity.
(A) ○ Free
(B) ○ Half
(C) ○ **Total (Correct Answer)** (Chosen option)
(D) ○ Independent

Question No.8

The pre-treatment filtration of water which involves the use of alum is known as:
(A) ○ Chlorination
(B) ○ **Coagulation (Correct Answer)**
(C) ○ Ultra-violet radiation treatment
(D) ○ Sedimentation (Chosen option)

Question No.9

The _____ largest rail network in the world in India.
(A) ○ first
(B) ○ third (Chosen option)
(C) ○ **fourth (Correct Answer)**
(D) ○ second

Question No.10

The minimum design speed adopted where hair-pin bends are provided at hill roads is _____
(A) ○ 40Kmph
(B) ○ **20Kmph (Correct Answer)**
(C) ○ 50Kmph
(D) ○ 30Kmph (Chosen option)

Question No.11

Marks: 1.00
Bookmark

If the given soil sample is having volume of voids equal to the volume of solids, then the values of void ratio and porosity are_____ respectively.

(A) ○ **1.00 and 0.50 (Correct Answer)** (Chosen option)

(B) ○ 0.00 and 0.50

(C) ○ 0.00 and 1.00

(D) ○ 0.50 and 1.00

Question No.12

Marks: 1.00
Bookmark

Creep is defined as the:

(A) ○ Lateral movement of rail (Chosen option)

(B) ○ **Longitudinal movement of rail (Correct Answer)**

(C) ○ Vertical movement of rail

(D) ○ Difference in level of two rails

Question No.13

Marks: 1.00
Bookmark

The values of curve lead (CL) and switch lead (SL) for a curve are 5 and 3 units respectively. Calculate the lead of crossings (L).

(A) ○ 8

(B) ○ **2 (Correct Answer)** (Chosen option)

(C) ○ 3

(D) ○ 1

Question No.14

Marks: 1.00
Bookmark

The IS code provision for conduction of modified proctor compaction test is:

(A) ○ IS-2720-PART 10 - 1983

(B) ○ IS-2720-PART 17 - 1983

(C) ○ IS-2720-PART 12 - 1983

(D) ○ **IS-2720-PART 8 - 1983 (Correct Answer)** (Chosen option)

Question No.15

Marks: 1.00
Bookmark

The interrelation between percentage air voids, specific gravity, dry unit weight, unit weight of water and water content is given by:

(A) ○
$$\gamma_d = \frac{(1+na)G\gamma_w}{1+Gw}$$

(B) ○
$$\gamma_d = \frac{G\gamma_w}{(1-na)}$$

(C) ○
$$\gamma_d = \frac{(1-n_a)G\gamma_w}{1+Gw}$$ **(Correct Answer)** (Chosen option)

(D) ○
$$\gamma_d = \frac{G\gamma_w}{(1+na)}$$

Question No.16

Marks: 1.00
Bookmark

In stone wave, salt glazed pipes, usually what type of joint is used?
(A) ○ Bandage joint
(B) ○ **Spigot joint (Correct Answer)**
(C) ○ Flush joint
(D) ○ Collar joint (Chosen option)

Question No.17

Marks: 1.00
Bookmark

Which one of the following contour methods is employed in route surveys for roads?
(A) ○ Tacheometry method (Chosen option)
(B) ○ Spot levels method
(C) ○ Direct method
(D) ○ **Cross sections method (Correct Answer)**

Question No.18

Marks: 1.00
Bookmark

Yielding is defined as the transition from _____ to _____
(A) ○ **Elastic behaviour, plastic behaviour (Correct Answer)** (Chosen option)
(B) ○ Plastic behaviour, elastic behaviour
(C) ○ Plastic behaviour, fracture
(D) ○ None of these

Question No.19

Marks: 1.00
Bookmark

The property that helps to draw the wire is _____
(A) ○ tenacity
(B) ○ plasticity
(C) ○ **ductility (Correct Answer)** (Chosen option)
(D) ○ elasticity

Question No.20

Marks: 1.00
Bookmark

A beam 300 mm depth and of symmetrical I section has a I = 1 x 10^8 mm^4 and is simply supported over a span of 6 m. Calculate the udl it may carry if the max bending stress is not to exceed 100 N/mm^2.
(A) ○ 14.6 kN/m (Chosen option)
(B) ○ 15 N/mm
(C) ○ **14.81 kN/m (Correct Answer)**
(D) ○ 15.14 kN/m

Question No.21

Marks: 1.00
Bookmark

When the weight of the fluid displaced is less than the weight of the solid body then:

(A) ○ Body floats

(B) ○ The body will be half immersed in the fluid

(C) ○ **The body sinks in a fluid (Correct Answer)** (Chosen option)

(D) ○ The body will be rotating

Question No.22

Marks: 1.00
Bookmark

Within the boundary layer region, which force dominates over inertia force?

(A) ○ Velocity force

(B) ○ Dynamic force

(C) ○ **Viscous force (Correct Answer)** (Chosen option)

(D) ○ No force

Question No.23

Marks: 1.00
Bookmark

Cavity type tube well is suitable for:

(A) ○ **Strong clay stratum (Correct Answer)**

(B) ○ Course gravel (Chosen option)

(C) ○ Clean gravel

(D) ○ Fine grained strata

Question No.24

Marks: 1.00
Bookmark

Which one of the following effects produced by a cut off in an alluvial river is not an advantage to navigation?

(A) ○ Increased water depth at low river stages.

(B) ○ Shortened travel time, particularly at low and moderate river stages.

(C) ○ **Lowering of flood stages and flood period. (Correct Answer)** (Chosen option)

(D) ○ Shortened route and elimination of sharp bends

Question No.25

Marks: 1.00
Bookmark

Which of the following processes consists of measuring and comparing results and taking suitable action to bring the project on track?

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

(B) ○ Planning

(C) ○ Scheduling

(D) ○ Leading

Question No.26

Marks: 1.00
Bookmark

For crossings and points, the maximum size of ballast is:

(A) ○ 50 mm (Chosen option)

(B) ○ 20 mm

(C) ○ **25 mm (Correct Answer)**

(D) ○ 35 mm

Question No.27

Marks: 1.00

Bookmark

The spacing between two vertical stirrups in a rectangular RCC beam is:
(A) ○ **Minimum near the supports (Correct Answer)**
(B) ○ Maximum near the centre
(C) ○ Maximum near the supports (Chosen option)
(D) ○ Minimum near the centre

Question No.28

Marks: 1.00

Bookmark

The design of the sedimentation basins totally depends upon the _____
(A) ○ types of screening
(B) ○ trickling filters
(C) ○ **settling velocity (Correct Answer)** (Chosen option)
(D) ○ source of disposal

Question No.29

Marks: 1.00

Bookmark

Strain energy stored in a shaft is given by:
(A) ○ **U = 0.5TӨ (Correct Answer)** (Chosen option)
(B) ○ U = 2TӨ
(C) ○ U = TӨ
(D) ○ U = 1.5TӨ

Question No.30

Marks: 1.00

Bookmark

What is the working moment of resistance for a beam of width 300 mm and effective depth 450 mm having tension reinforcement 3 - 25 mm dia bars of Fe415 and concrete of Grade M25?
(A) ○ 120 KNm
(B) ○ 195 KNm (Chosen option)
(C) ○ **130 KNm (Correct Answer)**
(D) ○ 200 KNm

Question No.31

Marks: 1.00

Bookmark

IS 4987-1968 has recommended one gauge in _____ square km in predominantly hilly regions with heavy rain fall.
(A) ○ 390
(B) ○ 520
(C) ○ **130 (Correct Answer)** (Chosen option)
(D) ○ 260

Question No.32

Marks: 1.00

Bookmark

If ruling gradient is 5%, what will be the grade compensation compensated gradient for a curve radius of 60 m?
(A) ○ 4.75%
(B) ○ **3.75% (Correct Answer)**

(C) ○ 2.75%

(D) ○ 5.75%

Question No.33

Marks: 1.00
Bookmark

The solubility product for the dissociation of $Mg(OH)_2$ is 8×10^{-9}. Determine the concentration of OH^- at equilibrium expressed as milligram per litres of $CaCO_3$.

(A) ○ 252 mg/l

(B) ○ 50 mg/l

(C) ○ 300 mg/l

(D) ○ **126 mg/l (Correct Answer)**

Question No.34

Marks: 1.00
Bookmark

Nagpur Road Plan is also called   road development plan.

(A) ○ second

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

(C) ○ fourth

(D) ○ third

Question No.35

Marks: 1.00
Bookmark

If the R.L. of canal bed level and high flood level of drainage are 208 meter and 215 meter respectively then cross drainage work will be:

(A) ○ Aqueduct (Chosen option)

(B) ○ **Super passage (Correct Answer)**

(C) ○ Syphon

(D) ○ Syphon aqueduct

Question No.36

Marks: 1.00
Bookmark

What is the name of the solution which is used to measure the amount of albuminoid nitrogen present in the sewage?

(A) ○ NH_4CL

(B) ○ $K_2Cr_2O_7$

(C) ○ NH_4NO_3

(D) ○ **$KMnO_4$ (Correct Answer) (Chosen option)**

Question No.37

Marks: 1.00
Bookmark

Kennedy's equation for relation between critical velocity (V_o) and depth of flowing water (D) is given as:

(A) ○ $V_o = 0.75 \, D^{0.64}$

(B) ○ $V_o = 0.55 \, D^{0.75}$

(C) ○ **$V_o = 0.55 \, D^{0.64}$ (Correct Answer) (Chosen option)**

(D) ○ $V_o = 0.64 \, D^{0.55}$

Question No.38

Marks: 1.00
Bookmark

The sleeper density of a BG track is (n+6). If the length of one BG rail is 13 m then find the number of sleepers per 1.024 km of track.

(A) ○ 1720

(B) ○ **1497 (Correct Answer)** (Chosen option)

(C) ○ 1800

(D) ○ 1630

Question No.39

Marks: 1.00
Bookmark

Two contour lines of same elevation:

(A) ○ **Cannot unite and continue as one line. (Correct Answer)**

(B) ○ Cannot unite and but continue as one line.

(C) ○ Can unite and but not continue as one line.

(D) ○ Can unite and continue as one line. (Chosen option)

Question No.40

Marks: 1.00
Bookmark

The defect in which the flow of mixing water takes place is known as:

(A) ○ **Bleeding (Correct Answer)**

(B) ○ Segregation (Chosen option)

(C) ○ Honeycomb

(D) ○ Guniting

Question No.41

Marks: 1.00
Bookmark

In   , it was decided to replace the existing rail networks with zones.

(A) ○ **1952 (Correct Answer)**

(B) ○ 1947

(C) ○ 1950

(D) ○ 1955 (Chosen option)

Question No.42

Marks: 1.00
Bookmark

In sand replacement test, the size of the sand used with respect to IS sieves is:

(A) ○ **Passing 600 micron and retained on 300 microns (Correct Answer)**

(B) ○ Passing 75 micron and retained on 5 micron

(C) ○ Passing 4.75 mm and retained on 425 micron (Chosen option)

(D) ○ Passing 4.75 mm and retained on 75 micron
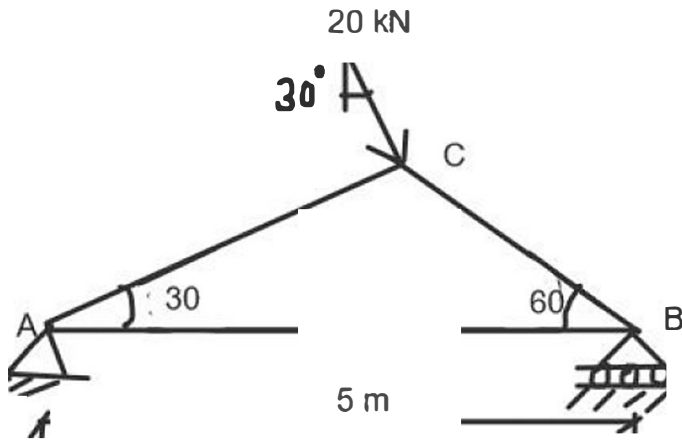
Question No.43

Marks: 1.00
Bookmark

        is a temporary dam constructed to exclude water from a specific area.

(A) ○ Impounding

(B) ○ Detention

(C) ○ Diversion (Chosen option)

(D) ○ **Coffer (Correct Answer)**

Question No.44

Marks: 1.00

Bookmark

Analyze the truss.

(A) ○ F_{AB} = 10 KN (C), F_{BC} = 20 KN (C), F_{AC} = 0 (Chosen option)

(B) ○ F_{AB} = 10 KN (C), F_{BC} = 20 KN (T), F_{AC} = 0

(C) ○ F_{AB} = 10 KN (T), F_{BC} = 20 KN (T), F_{AC} = 0

(D) ○ **F_{AB} = 10 KN (T), F_{BC} = 20 KN (C), F_{AC} = 0 (Correct Answer)**

Question No.45

Marks: 1.00

Bookmark

Express 6 m water (absolute) pressure head to gauge pressure head.

(A) ○ **P_g = -4.33 m (Correct Answer)** (Chosen option)

(B) ○ P_g = 7.5 cm

(C) ○ P_g = -4.44 cm

(D) ○ P_g = 78 km

Question No.46

Marks: 1.00

Bookmark

The ratio of axial deformation to the original length of the body is known as:

(A) ○ Compressive stress (Chosen option)

(B) ○ Lateral strain

(C) ○ Poisson's ratio

(D) ○ **Linear Strain (Correct Answer)**

Question No.47

Marks: 1.00

Bookmark

The horizontal circle in a theodolite is graduated in:

(A) ○ The quadrantal system from 0 to 90° in the four quadrants

(B) ○ Similar to that of prismatic compass

(C) ○ **The whole circle system from 0 to 360° (Correct Answer)**

(D) ○ The semi-circle system from 0 to 180° in the right and left halves (Chosen option)

Question No.48

Marks: 1.00
Bookmark

In standard proctor compaction test, as per IS specification the mass of the rammer and height of fall is _____ respectively.

(A) ○ 4.89 kg and 310 mm

(B) ○ **2.6 kg and 310 mm (Correct Answer)**

(C) ○ 2.6 kg and 450 mm

(D) ○ 4.89 kg and 450 mm (Chosen option)

Question No.49

Marks: 1.00
Bookmark

A column of size 400 × 550 mm have M25 grade of concrete and Fe415 subjected to 1700 KN of axial load. The effective length of column is 3.1 m. Determine the steel reinforcement required.

(A) ○ 1500 mm^2

(B) ○ 1400 mm^2

(C) ○ 1605 mm^2 (Chosen option)

(D) ○ **1305 mm^2 (Correct Answer)**

Question No.50

Marks: 1.00
Bookmark

The normal duration and normal cost of activity are 25 days and Rs. 50,000 respectively. The activity crash duration is 22 days and the indirect cost is Rs. 1,000 per day. If the cost slope is Rs. 1,500 per day, then the total cost of activity after the crashing will be:

(A) ○ **Rs. 51,500 (Correct Answer)** (Chosen option)

(B) ○ Rs. 47,500

(C) ○ Rs. 54,500

(D) ○ Rs. 45,500

Question No.51

Marks: 1.00
Bookmark

If one litre of fluid is weighing 10 N, then determine it's specific volume.

(A) ○ **0.981 m^3/kg (Correct Answer)**

(B) ○ 981 m^3 (Chosen option)

(C) ○ 0.981 m^3

(D) ○ 9810 m^3

Question No.52

Marks: 1.00
Bookmark

The quickest potential time in which an activity can be completed under perfect conditions is referred as:

(A) ○ The most likely time estimate

(B) ○ Expected time estimate

(C) ○ Pessimistic time estimate

(D) ○ **Optimistic time estimate (Correct Answer)** (Chosen option)

Question No.53

Marks: 1.00
Bookmark

The most suitable location of a canal head work, is:
(A) ○ Boulders stage of the river
(B) ○ **Trough stage of the river (Correct Answer)**
(C) ○ Delta stage of the river
(D) ○ Rock stage of the river (Chosen option)

Question No.54   Marks: 1.00
                                                                                   Bookmark

Ideal shape of the vertical summit curve in road is _____
(A) ○ **simple parabolic curve (Correct Answer)**
(B) ○ lemniscate
(C) ○ spiral (Chosen option)
(D) ○ circular arc

Question No.55   Marks: 1.00
                                                                                   Bookmark

The ratio of decrease of the length of the body to the original length is known as:
(A) ○ Tensile strain
(B) ○ **Compressive strain (Correct Answer)** (Chosen option)
(C) ○ Volumetric strain
(D) ○ Shear strain

Question No.56   Marks: 1.00
                                                                                   Bookmark

An oil of Viscosity 8 poise and specific gravity 0.9 flowing through a horizontal pipe 80 mm diameter. If the pressure drop in 100 m length of pipe is 1800 KN/m^2 determine
a) Rate of flow (Q)
b) Centre line velocity (u_{max})

(A) ○
$Q = 0.2259 \text{m}^3/\text{s}, u_{max} = 9 \text{ m/s}$ **(Correct Answer)**

(B) ○
$Q = 0.2259 \text{m}^3/\text{s}, u_{max} = 9.2 \text{ m/s}$ (Chosen option)

(C) ○
$Q = 0.2269 \text{m}^3/\text{s}, u_{max} = 9.5 \text{ m/s}$

(D) ○
$Q = 0.259 \text{m}^3/\text{s}, u_{max} = 10 \text{m/s}$

Question No.57   Marks: 1.00
                                                                                   Bookmark

Which of the following types of aggregate gives higher strength in concrete?
(A) ○ Flaky aggregate
(B) ○ Elongated aggregate
(C) ○ **Rounded aggregate (Correct Answer)**
(D) ○ Irregular aggregate (Chosen option)

Question No.58   Marks: 1.00
                                                                                   Bookmark

The length of a chain line measured along a slope is 300.50 m. If the slope of the ground

is 5°, the horizontal distance is _____

(A) ○ 261.90 m (Chosen option)
(B) ○ 29.935 m
(C) ○ 26.190 m
(D) ○ **299.356 m (Correct Answer)**

Question No.59 Marks: 1.00
Bookmark

Which of the following is the effective width of the flange of a L-beam where l_0 is distance between points of zero moment, D_f is depth of flange, b_w width of web, b_f effective width of flange, b is actual width of flange?

(A) ○
$$b_f = \frac{l_0}{\frac{l_0}{b}+4} + b_w$$

(B) ○
$$b_f = \frac{0.5l_0}{\frac{l_0}{b}+4} + b_w$$

(C) ○
$$b_f = \frac{l_0}{12} + b_w + 3D_f$$ (Correct Answer)

(D) ○
$$b_f = \frac{l_0}{6} + b_w + 6D_f$$

Question No.60 Marks: 1.00
Bookmark

If 20% of the reservoir capacity is earmarked for dead storage in a storage reservoir of 30 M.cum and the average annual silt deposition in the reservoir is 0.1 M.cum, then the useful life of the reservoir will start reducing after:

(A) ○ 240 years (Chosen option)
(B) ○ 120 years
(C) ○ **60 years (Correct Answer)**
(D) ○ 300 years

Question No.61 Marks: 1.00
Bookmark

Which one of the following is maximum hourly consumption of maximum daily demand?
(A) ○ 2.7 × average daily demand
(B) ○ 1.48 × average hourly demand
(C) ○ 1.8 × average daily demand
(D) ○ **1.5 × average hourly demand (Correct Answer) (Chosen option)**

Question No.62 Marks: 1.00
Bookmark

Two pipes are connected in parallel between two reservoirs that have differences in the level of 3 m. The length, diameter, and friction factor (4 f) are 2800 m, 1.6 m, and 0.026 for the first pipe and 2800 m, 1 m and 0.019 for the second pipe. Calculate the discharge between two reservoirs.

(A) ○ 1.3 m³/sec

(B) ○ 1.5 m³/sec (Chosen option)

(C) ○ 1.143 m³/sec

(D) ○ **1.6 m³/sec (Correct Answer)**

Question No.63

Marks: 1.00
Bookmark

In which stage of engineering survey alignments of different proposals are compared and finalized as the best alignment?

(A) ○ Final location and detailed survey (Chosen option)

(B) ○ Reconnaissance survey

(C) ○ Map study

(D) ○ **Preliminary survey (Correct Answer)**

Question No.64

Marks: 1.00
Bookmark

Which of the following tests is performed to detect the leakage of rain water pipe in the testing of house sewers?

(A) ○ Water test (Chosen option)

(B) ○ **Smoke test (Correct Answer)**

(C) ○ Temperature test

(D) ○ Air test

Question No.65

Marks: 1.00
Bookmark

Which one of the following triangles is most accurately plotted in chain surveying?

(A) ○ **Equilateral triangle (Correct Answer)**

(B) ○ Right angled triangle

(C) ○ Isosceles triangle (Chosen option)

(D) ○ Obtuse angled triangle

Question No.66

Marks: 1.00
Bookmark

A level is set up at O on a line AB 20 m from A and 1200 m from B. The BS on A is 0.532 m and the FS on B is 3.425 m. The combined correction to be applied for 20 m distance is:

(A) ○ 0.00269 m

(B) ○ **0 m (Correct Answer)**

(C) ○ 0.269 m

(D) ○ 0.0269 m

Question No.67

Marks: 1.00
Bookmark

Find the building's depreciation cost using straight-line method, when the building's cost, scrap value and life are Rs. 3,00,000/-, Rs. 1,00,000/- and 10 years respectively.

(A) ○ Rs. 10,000/- per year

(B) ○ Rs. 30,000/- per year

(C) ○ **Rs. 20,000/- per year (Correct Answer)** (Chosen option)

(D) ○ Rs. 5,000/- per year

Question No.68   Marks: 1.00
                                                                      Bookmark

In an open channel flow, the alternate depths are:
(A) ○ Which have the same specific energy
(B) ○ At same velocity points (Chosen option)
(C) ○ **Which occurs at the same specific energy (Correct Answer)**
(D) ○ At critical depth

Question No.69   Marks: 1.00
                                                                      Bookmark

Which of the following activities does not require resources for their execution?
(A) ○ Sequential activities
(B) ○ Predecessor and successor activities
(C) ○ Parallel activities
(D) ○ **Dummy activities (Correct Answer)** (Chosen option)

Question No.70   Marks: 1.00
                                                                      Bookmark

In which method of adjusting a traverse, the errors in linear measurements are proportional to √1? (Where 1 is the length of a line)
(A) ○ Axis method
(B) ○ Transit method (Chosen option)
(C) ○ **Bowditch's method (Correct Answer)**
(D) ○ Graphical method

Question No.71   Marks: 1.00
                                                                      Bookmark

In a consolidation test the void ratio is found to be 1.18 under the effective pressure of 210 kN/m^2, the void ratio reduced to 0.92 when the pressure is increased to 420 kN/m^2. The compression index is:
(A) ○ **0.86 (Correct Answer)**
(B) ○ 0.49
(C) ○ 0.24
(D) ○ 0.78

Question No.72   Marks: 1.00
                                                                      Bookmark

Which of the following statements are CORRECT for Fungi?
(i) It is a multi-cellular and non-photosynthesis plant
(ii) Capable of growing in low -moisture and low pH environment
(iii) They can pass through an ultra-microscopic filter and they fall in the size range of 10 to 500 milli-microns
(iv) Their optimal temperature lies in between 20 to 30°C
(A) ○ (ii),(iii) and (iv) (Chosen option)
(B) ○ (i),(iii) and (iv)
(C) ○ (i),(ii) and (iii)
(D) ○ **(i),(ii) and (iv) (Correct Answer)**

Question No.73   Marks: 1.00

The IS code used for the determination of in-situ density by core cutter method is:
(A) ○ IS- 2720, PART-7
(B) ○ IS- 2720, PART-28
(C) ○ **IS- 2720, PART-29 (Correct Answer)**
(D) ○ IS- 456, PART-5

Question No.74

Marks: 1.00

In case of railway, the track resistance is caused due to:
(A) ○ Flange friction
(B) ○ Track irregularities
(C) ○ Frictional resistance of rails (Chosen option)
(D) ○ **Wave action of rail (Correct Answer)**

Question No.75

Marks: 1.00

Aggregate Impact value measures the property of _____
(A) ○ abrasion
(B) ○ hardness (Chosen option)
(C) ○ roughness
(D) ○ **toughness (Correct Answer)**

Question No.76

Marks: 1.00

What should be the clear distance between the lateral restraint for continuous beams?
(A) ○ 300mm
(B) ○ Minimum of 25b or 100b2/d
(C) ○ 50bd (Chosen option)
(D) ○ **Minimum of 60b or 250b2/d (Correct Answer)**

Question No.77

Marks: 1.00

A vehicle is travelling with a speed of 100 kmph on a level surface, what is the lag distance travelled during reaction time of the driver considering coefficient of friction is 0.35 and reaction time of the driver is 2.5 sec?
(A) ○ 59.5 m
(B) ○ 49.5 m
(C) ○ **69.5 m (Correct Answer)**
(D) ○ 79.5 m

Question No.78

Marks: 1.00

Select the CORRECT statement regarding Second Twenty Year Road Development plan:
(A) ○ Plan for the period 1961-81 and held in Nagpur
(B) ○ Plan for the period 1961-81 and held in Lucknow
(C) ○ Plan for the period 1981-2001 and held in Lucknow (Chosen option)
(D) ○ **Plan for the period 1961-81 and held in Mumbai (Correct Answer)**

Question No.79

Marks: 1.00
Bookmark

The one of the following is NOT the test to determine bearing capacity of soil.
- (A) ○ **Standard proctor test (Correct Answer)**
- (B) ○ Standard penetration test (Chosen option)
- (C) ○ Plate load test
- (D) ○ Dutch cone penetration test

Question No.80

Marks: 1.00
Bookmark

What is the value of standard deviation, used to calculate mean strength of concrete, for grade M25?
- (A) ○ 5 (Chosen option)
- (B) ○ 3.5
- (C) ○ **4 (Correct Answer)**
- (D) ○ 4.5

Question No.81

Marks: 1.00
Bookmark

In the case of flexible connection, a bent lead pipe about 600 mm long is inserted between the ferrule and the service pipe. This lead bent pipe is also called _____
- (A) ○ Stop-cock
- (B) ○ Sluice valve
- (C) ○ **Goose-neck (Correct Answer)** (Chosen option)
- (D) ○ Clamp hole

Question No.82

Marks: 1.00
Bookmark

The average outgoing quality's maximum value for all available ratio defective values is called:
- (A) ○ Average Outgoing Quality (AOQ)
- (B) ○ Acceptable Quality Level (AQL)
- (C) ○ **Average Outgoing Quality Limit (AOQL) (Correct Answer)** (Chosen option)
- (D) ○ Lot Tolerance Proportion Defective (LTPD)

Question No.83

Marks: 1.00
Bookmark

Find the ratio of friction drag on the front half and rear half of the flat plate kept at zero incidence in a stream of uniform velocity if the boundary layer is turbulent over the whole plate.
- (A) ○ **1.347 (Correct Answer)**
- (B) ○ 8.20
- (C) ○ 1.567
- (D) ○ 1.2 (Chosen option)

Question No.84

Marks: 1.00
Bookmark

A column will be considered as short when the ratio of the effective length to its least

lateral dimension is less than or equal to _____
(A) ○ 20
(B) ○ 16
(C) ○ **12 (Correct Answer)**
(D) ○ 10 (Chosen option)

Question No.85   Marks: 1.00
                                                                                   Bookmark

Which one of the following is not the adjustments of the plane table?
(A) ○ The surface of the board should be perfect plane.
(B) ○ The ruling of fiducial edge of the alidade should be straight.
(C) ○ The sight vanes of the alidade should be perpendicular to the base of the ruler.
(D) ○ **The bubble on spirit level need not be at center. (Correct Answer)** (Chosen option)

Question No.86   Marks: 1.00
                                                                                   Bookmark

Shooting flow in an open channel flow:
(A) ○ Is a tranquil flow
(B) ○ Is called as critical flow
(C) ○ **Occurs right after the hydraulic jump (Correct Answer)** (Chosen option)
(D) ○ Is a gradually varied flow

Question No.87   Marks: 1.00
                                                                                   Bookmark

The cross slope of Terrain greater than 25 percent and less than 60 percent is classified as:
(A) ○ Steep (Chosen option)
(B) ○ Rolling Terrain
(C) ○ **Mountainous Terrain (Correct Answer)**
(D) ○ Plain Terrain

Question No.88   Marks: 1.00
                                                                                   Bookmark

Which flow condition neglects inertia?
(A) ○ Very high Reynolds flow (Chosen option)
(B) ○ **Low Reynolds flow (Correct Answer)**
(C) ○ Medium Reynolds flow
(D) ○ High Reynolds flow

Question No.89   Marks: 1.00
                                                                                   Bookmark

A simply supported rectangular beam of span 4 m supports a udl of 40 kN/m. The cross-section of the beam is 200 mm x 400 mm. The max shear stress in the beam is:
(A) ○ 1.9 N/mm^2
(B) ○ 1.75 N/mm^2
(C) ○ **1.5 N/mm^2 (Correct Answer)**
(D) ○ 1 N/mm^2 (Chosen option)

Question No.90

Marks: 1.00
Bookmark

Which of the following item-by-item estimates is generated to ensure accuracy?
(A) ○ **Quantity estimate (Correct Answer)**
(B) ○ Document estimate
(C) ○ Quality estimate
(D) ○ Detailed estimate (Chosen option)

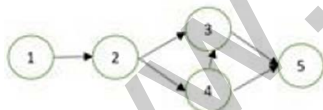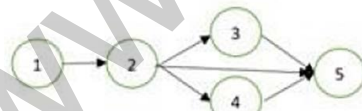**Question No.91**

Marks: 1.00
Bookmark

In the North India, the first train was operated from Allahabad to Kanpur in the year:
(A) ○ 1857
(B) ○ 1858
(C) ○ 1856
(D) ○ **1859 (Correct Answer) (Chosen option)**

Question No.92

Marks: 1.00
Bookmark

Select the correct AON network diagram for the following project activities:

Activity	Immediate Successor
1	2
2	3, 4
3	5
4	5

(A) ○

(B) ○

  (Correct Answer) (Chosen option)

(C) ○

(D) ○

Question No.93

Marks: 1.00
Bookmark

Select the incorrect statement from the following.
(A) ○ The measurement book has two different sections namely final measurement and progressive measurement. (Chosen option)
(B) ○ It is necessary to mention the unit of measurement in the measurement book.
(C) ○ **Measurement book is not important evidence in the court of law. (Correct Answer)**
(D) ○ Bill of quantity is required to maintain the measurement book.

Question No.94

Marks: 1.00

Bookmark

Which size (diameter) of theodolite is generally preferred for general survey and engineering work?
(A) ○ > 25 cm but < 30 cm
(B) ○ **8 to 12 cm (Correct Answer)**
(C) ○ > 4 cm but < 8 cm
(D) ○ 14 to 25 cm

Question No.95

Marks: 1.00

Bookmark

Lining of irrigation canal:
(A) ○ Increases water logging area
(B) ○ Does not change the water logging
(C) ○ **Decreases water logging area (Correct Answer)** (Chosen option)
(D) ○ Does change the water logging

Question No.96

Marks: 1.00

Bookmark

A quantity is said to be scalar if it is completely defined by its _____
(A) ○ **magnitude only (Correct Answer)** (Chosen option)
(B) ○ direction only
(C) ○ both magnitude and direction
(D) ○ shape only

Question No.97

Marks: 1.00

Bookmark

What will be the maximum diameter of the bar in the design of slab of 100 mm overall depth?
(A) ○ **12 mm (Correct Answer)** (Chosen option)
(B) ○ 16 mm
(C) ○ 14 mm
(D) ○ 20 mm

Question No.98

Marks: 1.00

Bookmark

In a steady laminar flow through a circular pipe, whose diameter is D, moving with a constant discharge, the hydraulic gradient is:
(A) ○ Inversely proportional to D (Chosen option)
(B) ○ **Inversely proportional to D^2 (Correct Answer)**
(C) ○ Inversely proportional to D^5
(D) ○ Inversely proportional to D^4

Question No.99

Marks: 1.00

Bookmark

A discharge through a horizontal trapping is 0.06 m^3/s. Diameters at inlet and outlet are 250 mm and 200 mm respectively. If water enter the pipe at pressure of 9.81 bar, calculate outlet pressure.

(A) ○ P_2 = 200 Gpa

(B) ○ **P_2 = 980.04 KN/m^2 (Correct Answer)**

(C) ○ P_2 = 50 N/mm^2 (Chosen option)

(D) ○ P_2 = 1000 Kpa

Question No.100   Marks: 1.00
                                                                Bookmark

Internal customers of product can be found by using:

(A) ○ C-Chart

(B) ○ P-Chart (Chosen option)

(C) ○ **Flow Chart (Correct Answer)**

(D) ○ Control Chart

Question No.101   Marks: 1.00
                                                                Bookmark

Which of the following admixtures is NOT a chemical admixture?

(A) ○ Superplasticizers

(B) ○ Plasticizers

(C) ○ **Fly ash (Correct Answer)** (Chosen option)

(D) ○ Accelerators

Question No.102   Marks: 1.00
                                                                Bookmark

Which of the following organization types is the most democratic?

(A) ○ Functional

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

(C) ○ Line

(D) ○ Line and Stock

Question No.103   Marks: 1.00
                                                                Bookmark

The standard penetration number(N) refers to the number of blows required for _____ penetration.

(A) ○ 150 mm (Chosen option)

(B) ○ 30 m

(C) ○ 15 m

(D) ○ **300 mm (Correct Answer)**

Question No.104   Marks: 1.00
                                                                Bookmark

_____ is NOT a contra entry for cash book.

(A) ○ Rs. 4000 credited into bank

(B) ○ Rs. 4000 debited from the bank for business purpose

(C) ○ **Rs. 4000 debited from the bank for personal use (Correct Answer)** (Chosen option)

(D) ○ Deposited cheque into the bank

Question No.105   Marks: 1.00
                                                                       Bookmark

Which one of the following is INCORRECT about design consideration of sewers system?

(A) ○ **The quantity of sanitary sewage and industrial waste is proportional to the water supplied by public supply (Correct Answer)**

(B) ○ A deep of about 12 mm is given in a manhole where only direction changes (Chosen option)

(C) ○ Sanitary sewers should be designed for self-creating velocity of at least 60 cm/sec and combined sewers for a velocity of 75 to 90 cm/sec

(D) ○ Sewers in the combined system should be capable of carrying at least two times the Dry Weather Flow (D.W.F.) in addition to stormwater

Question No.106   Marks: 1.00
                                                                       Bookmark

Calculate shear force at the fixed end of cantilever beam having span of 2 m carries uniformly distributed load of 1 kN/m run over the length of 1.5 m from the free end.

(A) ○ 2.5 kN

(B) ○ **1.5 kN (Correct Answer)** (Chosen option)

(C) ○ 2.0 kN

(D) ○ 1.8 kN

Question No.107   Marks: 1.00
                                                                       Bookmark

An air pressure intensity at A is $1/10$ N/mm^2 (absolute) having $h_1 = 0.25$, $h_2 = 0.15$. What is the pressure at B (absolute)?

(A) ○ $P_B = 401$ N

(B) ○ **$P_B = 108 \times 10^{-3}$ N/mm2 (Correct Answer)**

(C) ○ $P_B = 201$ N

(D) ○ $P_B = 108$ KN/mm^3

Question No.108   Marks: 1.00
                                                                       Bookmark

The cantilever of length (l) carries a load whose intensity varies uniformly from zero at free end to w per unit length at the fixed end, the bending moment diagram will be:

(A) ○ Parabolic curve

(B) ○ **Cubic curve (Correct Answer)**

(C) ○ Straight line curve (Chosen option)

(D) ○ Combination of Straight line curve and Parabolic curve

Question No.109   Marks: 1.00
                                                                       Bookmark

Who was the Governor-General during the first train run in India?

(A) ○ Lord William Bentinck

(B) ○ Lord Cornwallis

(C) ○ Lord Curzon

(D) ○ **Lord Dalhousie (Correct Answer)**

Question No.110   Marks: 1.00

When a solid cylinder of 6 m diameter and 3 m height is floating with its axis vertical, find the metacentric height. (take specific gravity as 0.4)

(A) ○ 4.3 m (Chosen option)

(B) ○ 0.33 m

(C) ○ **3.3 m (Correct Answer)**

(D) ○ 3 m

Question No.111   Marks: 1.00

Area of bending moment diagram sometimes is found easily by splitting the combined areas into:

(A) ○ squares, triangles and rectangles

(B) ○ squares and triangles

(C) ○ rectangles and squares

(D) ○ **triangles and rectangles (Correct Answer)** (Chosen option)

Question No.112   Marks: 1.00

Location surveys are used for:

(A) ○ Collecting precise data

(B) ○ **Setting out the work on the ground (Correct Answer)**

(C) ○ Determining the rough cost

(D) ○ Determining the feasibility of the area (Chosen option)

Question No.113   Marks: 1.00

Which of the following codes is used for methods of sampling and analysis of concrete?

(A) ○ IS 4926:1976

(B) ○ **IS 1199:1959 (Correct Answer)**

(C) ○ IS 516:1959

(D) ○ IS 10262:1982 (Chosen option)

Question No.114   Marks: 1.00

Which of the following concepts is used to check the service load capacity of the beam section?

(A) ○ **Force concept (Correct Answer)**

(B) ○ Load balancing concept

(C) ○ Stress concept (Chosen option)

(D) ○ Pressure concept

Question No.115   Marks: 1.00

Calculate the stress at the bottom of mid span in a prestressed concrete beam of size 350 × 500 mm is provided with a straight cable of 20 wires of 5 mm of bars stressed at 1500 N/mm^2 at eccentricity 100 mm. Beam is subjected to UDL of 30 KN/m over a span of 8 m.

(A) ○ +6.22 N/mm^2

(B) ○ **-12.64 N/mm² (Correct Answer) (Chosen option)**

(C) ○ +12.64 N/mm²

(D) ○ -6.22 N/mm²

Question No.116   Marks: 1.00
Bookmark

Which of the subsequent NDT methods requires the molded part to be sealed before the inspection?

(A) ○ **Pressure test (Correct Answer)**

(B) ○ Impact test

(C) ○ Visual inspection

(D) ○ Sound test (Chosen option)

Question No.117   Marks: 1.00
Bookmark

Which one of the following cements is also known as 'Snowcrete'?

(A) ○ **Hydrophobic Cement (Correct Answer)**

(B) ○ Portland Pozzolana cement

(C) ○ Coloured Cement

(D) ○ White Cement (Chosen option)

Question No.118   Marks: 1.00
Bookmark

If the sanctioned estimate exceeds _____ % due to a change in the price level, a revised estimate is created.

(A) ○ 3

(B) ○ **5 (Correct Answer) (Chosen option)**

(C) ○ 4

(D) ○ 6
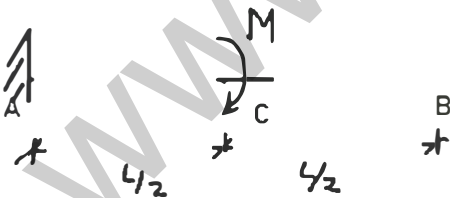
Question No.119   Marks: 1.00
Bookmark

Which among the following is CORRECT about the Bending Moment and Shear Forces at centre, respectively?

(A) ○ M kN-m, M kN

(B) ○ **M kN-m, 0 (Correct Answer)**

(C) ○ ML kN-m, M/2 kN (Chosen option)

(D) ○ 0, M kN

Question No.120   Marks: 1.00
Bookmark

_____ efficiency is the ratio of quantity of water delivered to the field to the quantity of water diverted into canal system from reservoir.

(A) ◯ Water storage

(B) ◯ Consumptive use

(C) ◯ Water use

(D) ◯ **Water conveyance (Correct Answer)** (Chosen option)