



**(Papers) SSC Junior Engineer Exam Paper - 2018 "held  
on 22 Jan 2018" Morning Shift  
(Civil Engineering)**

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**QID : 101** - Which of the following represent the crushing strength (MPa) for the good quality stone that are used in the construction of buildings?

**Options:**

- 1) Less than 20
- 2) 20 to 60
- 3) 60 to 80
- 4) Greater than 100

**Correct Answer:** Greater than 100

**QID : 102** - Which of the following is examined to determine the age of timber?

**Options:**

- 1) Annular ring
- 2) Sapwood
- 3) Pith
- 4) Timber defects

**Correct Answer:** Annular ring

**QID : 103** - Which of the following is determined with the help of Le Chatelier's device?

**Options:**

- 1) Abrasion resistance
- 2) Chemical resistance
- 3) Soundness
- 4) Strength

**Correct Answer:** Soundness

**QID :** 104 - The type of mortar which is used for the construction works carried out in water-logged area is \_\_\_\_\_.

**Options:**

- 1) cement mortar
- 2) loose mortar
- 3) mortar of very low consistency
- 4) mortar having high w/c ratio

**Correct Answer:** cement mortar

**QID :** 105 - For M 25 grade concrete, the split tensile strength in terms of percentage of its compressive strength is \_\_\_\_\_.

**Options:**

- 1) 7 to 11%
- 2) 18 to 28%
- 3) 28 to 38%
- 4) 38 to 48%

**Correct Answer:** 7 to 11%

**QID :** 106 - Distempers are generally used to coat \_\_\_\_\_.

**Options:**

- 1) compound wall
- 2) external concrete surfaces
- 3) interior surface which are not exposed to environment
- 4) wood works

**Correct Answer:** interior surface which are not exposed to environment

**QID :** 107 - Which of the following is commonly used as retarder in cement?

**Options:**

- 1) Calcium sulphate

- 2) Gypsum
- 3) Potassium carbide
- 4) Sodium chloride

**Correct Answer:** Gypsum

**QID :** 108 - In the process of hydration of OPC, to complete all chemical reaction, the water requirement (expressed as the percentage of cement) is \_\_\_\_\_.

**Options:**

- 1) 5 to 8%
- 2) 8 to 16%
- 3) 20 to 25%
- 4) 35 to 45%

**Correct Answer:** 20 to 25%

**QID :** 109 - The slump test is performed to check the \_\_\_\_\_.

**Options:**

- 1) presence of water in cement
- 2) ratio of concrete ingredients
- 3) temperature resistance
- 4) workability of concrete

**Correct Answer:** workability of concrete

**QID :** 110 - The reason behind the low expansion and shrinkage of the plywood is \_\_\_\_\_.

**Options:**

- 1) plies are placed at the right angles with each other
- 2) they are glued under the high pressure
- 3) they are held in the position with the help of adhesives
- 4) they are prepared with the help of veneers

**Correct Answer:** plies are placed at the right angles with each other

**QID :** 111 - Which one of the following method is used for the approximate estimation?

**Options:**

- 1) Both central line and short wall and long wall method
- 2) Central line method
- 3) Plinth area method

4) Short wall and long wall method

**Correct Answer:** Plinth area method

**QID :** 112 - Accuracy in the measurement of the thickness of the slab or sectional dimension of column and beam (in centimetre) should be \_\_\_\_\_.

**Options:**

1) 0.5

2) 1

3) 5

4) 10

**Correct Answer:** 0.5

**QID :** 113 - Deduction at T-junction of the wall for total length of the central line is \_\_\_\_\_.

**Options:**

1) half of thickness of wall

2) no deduction

3) thickness of wall

4) twice of the thickness of wall

**Correct Answer:** half of thickness of wall

**QID :** 114 - For estimation of painted area of semi corrugated asbestos cement sheets, percentage increase in area above plain area is \_\_\_\_\_.

**Options:**

1) 0.1

2) 0.14

3) 0.2

4) 0.25

**Correct Answer:** 0.1

**QID :** 115 - Scrap value of a property may be \_\_\_\_\_.

**Options:**

1) both negative or positive

2) constant

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3) negative

4) positive

**Correct Answer:** both negative or positive

**QID :** 116 - What is the unit of measuring cornice?

**Options:**

1) Cubic metre

2) Number

3) Running metre

4) Square metre

**Correct Answer:** Running metre

**QID :** 117 - Calculate the number of bricks in 20 cubic metres brick works.

**Options:**

1) 500

2) 1000

3) 10000

4) 100000

**Correct Answer:** 10000

**QID :** 118 - Calculate the area (square metre) of the formwork required for a beam of 2 m span and cross section dimension of 400 mm x 200 mm.

**Options:**

1) 0.8

2) 0.16

3) 1.2

4) 2

**Correct Answer:** 2

**QID :** 119 - The cross section areas of three sections of an embankment at an interval of 40 m are 10 square metres, 15 square metres and 35 square metres. Calculate the quantity of earthwork for the embankment. Use prismoidal method.

**Options:**

1) 1200

2) 1400

3) 1500

4) 2400

**Correct Answer:** 1400

**QID : 120** - Calculate the annual depreciation (Rs.) of a machine having initial cost of Rs. 10,000. The scrap value is Rs. 1,000 and useful life of 30 years.

**Options:**

1) 300

2) 367

3) 1333

4) 333333

**Correct Answer:** 300

**QID : 121** - What is the difference between the sum of interior angles of plane triangle and spherical triangle for area of triangle 195 square kilometre on the Earth's surface?

**Options:**

1) one degree

2) one minute

3) one second

4) one radian

**Correct Answer:** one second

**QID : 122** - Which one of the following is the largest scale?

**Options:**

1) 1 :500

2) 1 :1000

3) 1 :2500

4) 1 :50000

**Correct Answer:** 1 :500

**QID : 123** - The quadrantal bearing of the line lies in the third quadrant making angle in clockwise with the north is \_\_\_\_\_.

**Options:**

- 1)
- 30°
- 2)
- 45°
- 3)
- 60°
- 4)
- 75°

**Correct Answer:**

**QID :** 124 - Calculate the volume of the embankment (in cubic metre) using trapezoidal method, if the cross section areas of the three sections of an embankment at an interval of 30 m are 20 square metres, 40 square metres and 50 square metres.

**Options:**

- 1) 1100
- 2) 1150
- 3) 2250
- 4) 2350

**Correct Answer:** 2250

**QID :** 125 - Which one is the CORRECT order of the tapes based on their accuracy?

**Options:**

- 1) Linen tape > invar tape > metallic tape > steel tape
- 2) Invar tape > steel tape > metallic tape > linen tape
- 3) Metallic tape > steel tape > linen tape > invar tape
- 4) Metallic tape > steel tape > Invar tape > linen tape

**Correct Answer:** Invar tape > steel tape > metallic tape > linen tape

**QID :** 126 - In the leveling between two points A and B on the opposite sides of a pond, the level is first set up near the point A and staff reading on A and B are 2.5 m and 2.0 m respectively. Then the level is moved and set near the point B, staff reading on points



A and B are 1.2 m and 1.7 m respectively. Calculate the difference of heights between the two points A and B (in metre).

**Options:**

- 1) 0
- 2) 0.5
- 3) 1
- 4) 1.85

**Correct Answer:** 0

**QID :** 127 - Calculate the combined correction for curvature and refraction (in m) for a distance of 2 km.

**Options:**

- 1) 0.045
- 2) 0.135
- 3) 0.269
- 4) 3.14

**Correct Answer:** 0.269

**QID :** 128 - In transit theodolite, the line of the sight can be reversed by revolving the telescope through \_\_\_\_\_.

**Options:**

- 1) 90° in horizontal plane
- 2) 90° in vertical plane
- 3) 180° in horizontal plane
- 4) 180° in vertical plane

**Correct Answer:** 180° in vertical plane

**QID :** 129 - Which one is the CORRECT sequence for the temporary adjustment of the theodolite?

**Options:**

- 1) Centering, elimination of parallax, leveling, and setting
- 2) Centering, setting, elimination of parallax and leveling
- 3) Setting, centering, leveling and elimination of parallax
- 4) Setting, leveling, elimination of parallax and centering

**Correct Answer:** Setting, centering, leveling and elimination of parallax

**QID :** 130 - Which of the following is used for determining the location of station occupied by the plane table?

**Options:**

- 1) Both intersection and radiation
- 2) Intersection method
- 3) Radiation method
- 4) Two point problem

**Correct Answer:** Two point problem

**QID :** 131 - Which of the following is responsible for the formation of residual soil?

**Options:**

- 1) Glaciers
- 2) Water
- 3) Wind
- 4) None of these

**Correct Answer:** None of these

**QID :** 132 - The coefficient of gradation and the coefficient of uniformity of a given soil sample is 1.0 and 4.0 respectively. The ratio of effective size to the diameter through which 30% of the total mass is passed is \_\_\_\_\_.

**Options:**

- 1) 1.25
- 2) 1.5
- 3) 1.75
- 4) 2

**Correct Answer:** 2

**QID :** 133 - Which of the following shows the CORRECT order of increasing surface areas of the given soil?

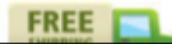
**Options:**

- 1) Clay < silt < sand < colloids
- 2) Gravel < silt < colloids < clay
- 3) Sand < silt < clay < colloids



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4) Silt < gravel < colloids < clay

**Correct Answer:** Sand < silt < clay < colloids

**QID :** 134 - What is the assumption made about back of wall, in the Rankine's theory of earth pressure?

**Options:**

- 1) Plane and rough
- 2) Plane and smooth
- 3) Vertical and rough
- 4) Vertical and smooth

**Correct Answer:** Vertical and smooth

**QID :** 135 - Which of the following is CORRECT about the viscosity of gas?

**Options:**

- 1) Inversely proportional to the temperature
- 2) Increases with an increase in the temperature
- 3) Independent of pressure
- 4) Independent of temperature

**Correct Answer:** Increases with an increase in the temperature

**QID :** 136 - Pressure of 200 kPa is equivalent to the head of z metre of liquid having relative density 1.59. The value of z (m) is \_\_\_\_\_.

**Options:**

- 1) 11.6
- 2) 11.82
- 3) 12.82
- 4) 13.14

**Correct Answer:** 12.82

**QID :** 137 - Which one of the following statement is CORRECT about the center of buoyancy?

**Options:**

- 1) It is the point where buoyant force act.
- 2) It coincides with the centroid of volume of water displaced
- 3) It is the point where buoyant force act. and It coincides with the centroid of volume of

water displaced

4) It acts outside the body.

**Correct Answer:** It is the point where buoyant force act. and It coincides with the centroid of volume of water displaced

**QID :** 138 - A longitudinal rectangular surface is hanged into the water such that its top and bottom points are at depth of 1.5 m and 6.0 m respectively. The depth of center of pressure (m) from the top surface is \_\_\_\_\_.

**Options:**

1) 3.8

2) 4.2

3) 4.6

4) 4.8

**Correct Answer:** 4.2

**QID :** 139 - The velocity potential which follow the equation of continuity is \_\_\_\_\_.

**Options:**

1)

$N(\theta - 180)^\circ E$

2)

$N(\theta - 180)^\circ W$

3)

$S(\theta - 180)^\circ E$

4)

$S(\theta - 180)^\circ W$

**Correct Answer:**

**QID :** 140 - At what distance from the boundary layer, the value of the wall shear is three times of the turbulent shear?

**Options:**

1)  $1/3 R$

2)  $1/2 R$

3)  $2/3 R$

4)  $3/4 R$

Correct Answer: 2/3 R

**QID : 141** - Which of the following statement is CORRECT about the stream lines and equipotential lines?

**Options:**

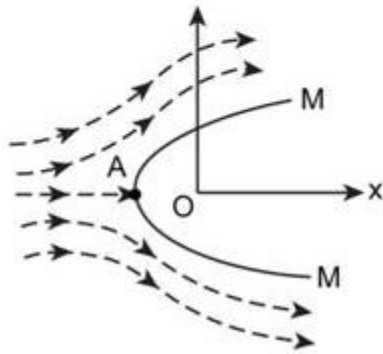
- 1) Both can be drawn graphically for viscous flow around any boundary.
- 2) Meshes formed by them are always squares.
- 3) They always meet orthogonally.
- 4) They can be calculated for all boundary conditions.

Correct Answer: They always meet orthogonally.

**QID : 142** -

The Rankine half oval body MM is subjected to the two-dimensional flow having velocity  $V$ . The typical stream line is shown in the following diagram. The point A in diagram shows \_\_\_\_\_.

रैनाइन (Rankine) आधा अंडाकार वस्तु MM,  $V$  वेग के साथ दो आयामी प्रवाह के अधीन है। विशिष्ट धारा रेखा निम्नलिखित आरेख में दिखाई गयी है। आरेख में बिंदु A \_\_\_\_\_ दर्शाता है।



**Options:**

- 1) point at which velocity is maximum
- 2) separation point
- 3) stagnation point

4) stall point

**Correct Answer:** stagnation point

**QID :** 143 - Which of the following is CORRECT ratio for Froude number?

**Options:**

- 1) Compressive force to inertia force.
- 2) Inertia force to gravity force.
- 3) Inertia force to tension force.
- 4) Viscous force to inertia force.

**Correct Answer:** Inertia force to gravity force.

**QID :** 144 - For the most economical triangular channel section, the angle of sloping sides from the vertical is \_\_\_\_\_.

**Options:**

- 1)  
 $x^2y$
- 2)  
 $x^2 - y^2$
- 3)  
 $\cos x$
- 4)  
 $x^2 + y^2$

**Correct Answer:**

**QID :** 145 - Method of applying water directly to the root zone of the plant is called \_\_\_\_\_.

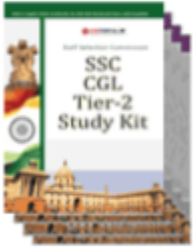
**Options:**

- 1) check flooding
- 2) drip method
- 3) furrow method
- 4) sprinkler irrigation

**Correct Answer:** drip method

**QID :** 146 - A field of 500 hectares is to be irrigated for a particular crop having 100 days base period. The total depth of water required by the crop is 100 cm. Calculate the duty of the water (in hectares per cubic metre).

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**Options:**

- 1) 8.64
- 2) 57.87
- 3) 86.4
- 4) 864

**Correct Answer:** 864

**QID :** 147 - The traffic volume of a roadway is defined as the multiplication of \_\_\_\_\_.

**Options:**

- 1) speed and time headway
- 2) speed and distance way
- 3) traffic density and speed
- 4) time head way and distance headway

**Correct Answer:** traffic density and speed

**QID :** 148 - Calculate the equivalent radius (cm) of the resisting section of 20 cm slab, if the ratio of radius of wheel load distribution to the thickness of the slab is 2.

**Options:**

- 1) 20
- 2) 35.6
- 3) 40
- 4) 40.9

**Correct Answer:** 40

**QID :** 149 - On peak hourly demand, what is the maximum daily consumption for the city which have average daily consumption of 100,000 m<sup>3</sup> ?

**Options:**

- 1) 140000
- 2) 170000
- 3) 200000
- 4) 270000

**Correct Answer:** 270000

**QID :** 150 - For which of the following, distribution mains is designed?

**Options:**

- 1) Average daily demand
  - 2) Annual peak demand
  - 3) Monthly peak demand
  - 4) Maximum hourly demand on maximum day
- Correct Answer:** Maximum hourly demand on maximum day

**QID :** 151 - Which of the following statements is true?

- A. Most of the loads applied to a building are environmental load.
- B. Most of the loads are dead followed by live loads.

**Options:**

- 1) Only A
  - 2) Only B
  - 3) Both A and B
  - 4) Neither A nor B
- Correct Answer:** Only B

**QID :** 152 - How does an increase in the pitch of the roof affects the amount of load that can be placed on it?

**Options:**

- 1) It increases
  - 2) It decreases
  - 3) Remains constant
  - 4) Depends upon case
- Correct Answer:** It decreases

**QID :** 153 - What will be the rain load (in psf) if  $d_s$  is 2 inches and  $d_h$  is 1 inches?

**Options:**

- 1) 5.2
  - 2) 10.4
  - 3) 15.6
  - 4) 20.8
- Correct Answer:** 15.6

**QID :** 154 - Concrete is:-

**Options:**

- 1) Good in compression, good in tension
- 2) Good in compression, weak in tension
- 3) Weak in compression, weak in tension
- 4) Weak in compression, good in tension

**Correct Answer:** Good in compression, weak in tension

**QID :** 155 - If in planar system, X parts/members are there with Y no. of forces, then condition for statically determinacy is:-

**Options:**

1)  $Y < 3X$

$Y < 3X$

2)  $Y > 3X$

$Y > 3X$

3)  $Y = 3X$

$Y = 3X$

4) None of these

**Correct Answer:**  $Y = 3X$

**QID :** 156 - If a system has more equations of equilibrium than no. of forces, then the system is:-

**Options:**

1) Improperly constrained

2) Partially constrained

3) Stable

4) None of these

**Correct Answer:** Partially constrained

**QID :** 157 - Which of the following material is not used in making trusses?

**Options:**

1) Wooden struts

2) Metal bars

3) Channel

4) Concrete

**Correct Answer:** Concrete

**QID : 158** - In a truss it is assumed that the members are joined by\_\_\_\_\_.

**Options:**

- 1) Rough pins
- 2) Smooth pins
- 3) Either rough or smooth pins
- 4) None of these

**Correct Answer:** Smooth pins

**QID : 159** - What is the major difference between truss and beam?

**Options:**

- 1) Beam can't transmit load in vertical direction while truss can
- 2) Truss can't transmit load in vertical direction while beam can
- 3) Beam can't transmit load in axial direction while truss can
- 4) Truss can't transmit load in axial direction while beam can

**Correct Answer:** Truss can't transmit load in vertical direction while beam can

**QID : 160** - Given that J is no. of joints. B and R are no. of members and no. of reactions.

If  $B = 4$ ,  $R = 3$  and  $J = 4$ , then the truss is:-

**Options:**

- 1) Statically determinate
- 2) Statically indeterminate and stable
- 3) Stable
- 4) Unstable

**Correct Answer:** Unstable

**QID : 161** - Which IS code gives details regarding water to be used in concrete?

**Options:**

- 1) IS 456
- 2) IS 383
- 3) IS 565
- 4) IS 3012

**Correct Answer:** IS 456

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**QID : 162** - Which of the below is an example of plasticizer?

**Options:**

- 1) Hydroxylated carboxylic acid
- 2) Fluoro-silicate
- 3) Gypsum
- 4) Surkhi

**Correct Answer:** Hydroxylated carboxylic acid

**QID : 163** - How many methods of batching of concrete are there?

**Options:**

- 1) 2
- 2) 3
- 3) 5
- 4) 6

**Correct Answer:** 2

**QID : 164** - Concrete is generally placed on a:

**Options:**

- 1) Form work
- 2) Stand
- 3) Mould
- 4) Platform

**Correct Answer:** Form work

**QID : 165** - The effective width of a column strip of a flat slab is taken as

**Options:**

- 1) one-fourth the width of the panel
- 2) half the width of the panel
- 3) half the diameter of the column
- 4) the diameter of the column

**Correct Answer:** half the width of the panel

**QID : 166** - Permanent dimension changes due to loading of concrete is termed as:

**Options:**

- 1) Strain
- 2) Extent
- 3) Creep
- 4) Ambit

**Correct Answer:** Creep

**QID :** 167 - In design of R.C.C. structures, the tensile strength of concrete is taken as:

**Options:**

- 1) 5N/mm<sup>2</sup>
- 2) 2N/mm<sup>2</sup>
- 3) 0.3N/mm<sup>2</sup>
- 4) None of these

**Correct Answer:** None of these

**QID :** 168 - Flexure strength of concrete is determined as:

**Options:**

- 1) Modulus of rigidity
- 2) Modulus of rupture
- 3) Modulus of plasticity
- 4) Modulus of elasticity

**Correct Answer:** Modulus of rupture

**QID :** 169 - Properties of concrete can broadly be divided into:

**Options:**

- 1) 1
- 2) 4
- 3) 2
- 4) 3

**Correct Answer:** 2

**QID :** 170 - Which IS code gives specifications about cement plaster?

**Options:**

- 1) IS 1500

2) IS 1221

3) IS 1400

4) IS 1661

**Correct Answer:** IS 1661

**QID : 171** - In a lime-cement plaster, ratio 1:1:6 corresponds to:

**Options:**

1) Lime:cement:sand

2) Cement:Lime:sand

3) Lime:sand:gravel

4) Cement:sand:gravel

**Correct Answer:** Cement:Lime:sand

**QID : 172** - On which of the following does the correct proportion of ingredients of concrete depend upon?

**Options:**

1) bulking of sand

2) water content

3) absorption and workability

4) All option are correct

**Correct Answer:** All option are correct

**QID : 173** -



If  $X, Y$  and  $Z$  are fineness moduli of coarse fine and combined aggregates, the percentage ( $P$ ) of fine aggregates to combined aggregates is

अगर मोटे, महीन और संयोजित पुंज का सूक्ष्मता गुणांक  $X, Y$  और  $Z$  हैं, तो महीन पुंज और संयोजित पुंज का प्रतिशत ( $P$ ) है

$$1) P = \frac{Z-X}{Z-Y} \times 100$$

$$2) P = \frac{X-Z}{Z-Y} \times 100$$

$$3) P = \frac{X-Z}{Z+Y} \times 100$$

$$4) P = \frac{X+Z}{Z-Y} \times 100$$

**Options:**

- 1) [1] Only
- 2) [2] Only
- 3) [3] Only
- 4) [4] only

**Correct Answer:** [2] Only

**QID :** 174 - Which of the following statements is false?

**Options:**

- 1) Workability of the concrete mix decreases with an increase in the moisture content
- 2) Concrete for which preliminary tests are conducted, is called controlled concrete
- 3) Bulking of sand depends upon the fineness of grains
- 4) All option are correct

**Correct Answer:** All option are correct

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**QID : 175** - Which of the following statements is false?

**Options:**

- 1) Space between the exterior walls of a warehouse and bag piles should be 30 cm
- 2) Cement bags should preferably be piled on wooden planks
- 3) Cement bags should be placed such that bags of one layer does not touch the bags of the adjacent layer
- 4) None of these

**Correct Answer:** None of these

**QID : 176** - Which of the following statements is false?

**Options:**

- 1) With passage of time, the strength of cement increases
- 2) With passage of time, the strength of cement decreases
- 3) After a period of 24 months, the strength of cement reduces to 50%
- 4) The concrete made with storage deteriorated cement gains strength with time

**Correct Answer:** With passage of time, the strength of cement increases

**QID : 177** - For a concrete mix 1:3:6 and water cement ratio 0.6 both by weight, what is the quantity of water required per bag?

**Options:**

- 1) 10 kg
- 2) 12 kg
- 3) 14 kg
- 4) None of these

**Correct Answer:** 14 kg

**QID : 178** - Transport of concrete by pumps, is done for a distance of

**Options:**

- 1) 100 m
- 2) 200 m
- 3) 300 m
- 4) 400 m

**Correct Answer:** 400 m

**QID : 179** - The compression in PSC is done by \_\_\_\_\_ of high-strength tendons.

**Options:**

- 1) Compression
- 2) Tensioning
- 3) Shearing
- 4) Bending

**Correct Answer:** Tensioning

**QID : 180** - In which beam tension capacity of steel is greater than combined compression capacity of steel and concrete?

**Options:**

- 1) Over-reinforced
- 2) Under-reinforced
- 3) Singly reinforced
- 4) Doubly reinforced

**Correct Answer:** Over-reinforced

**QID : 181** -

A simply supported beam carries a varying load from zero at one end and  $w$  at the other end. If the length of the beam is  $a$ , the maximum bending moment will be

सामान्य रूप से समर्थित बीम के एक छोर का भार  $w$  है और दूसरे छोर का भार  $w$  है। अगर बीम की लंबाई  $a$  है, तो अधिकतम बंकन आघूर्ण होगा

- A]  $\frac{wa}{27}$
- B]  $\frac{wa^2}{27}$
- C]  $\frac{w^2a}{\sqrt{27}}$
- D]  $\frac{wa^2}{9\sqrt{3}}$

**Options:**

- 1) A Only
- 2) B Only
- 3) C Only
- 4) D Only

**Correct Answer:** C Only

**QID :** 182 - For a circular slab carrying a uniformly distributed load, the ratio of the maximum negative to maximum positive radial moment is

**Options:**

- 1) 1
- 2) 2
- 3) 3
- 4) 4

**Correct Answer:** 2

QID : 183 -

If  $W$  is total load per unit area on a panel,  $D$  is the diameter of the column head,  $L$  is the span in two directions, then the sum of the maximum positive bending moment and average of the negative bending moment for the design of the span of a square flat slab, should not be less than

अगर पैनल पर कुल भार प्रति इकाई क्षेत्र  $W$  है, स्तंभ के शीर्ष का व्यास  $D$  है, दो दिशाओं में पाट  $L$  है, तो वर्गाकार समतल फलक के पाट की डिज़ाइन के लिए अधिकतम धनात्मक वंकन आघूर्ण और ऋणात्मक वंकन आघूर्ण के औसत का योगफल इससे कम नहीं होना चाहिए

A]  $\frac{WL}{12} \left( L - \frac{2D}{3} \right)^2$       B]  $\frac{WL}{10} \left( L + \frac{2D}{3} \right)^2$   
C]  $\frac{WL}{10} \left( L - \frac{2D}{3} \right)^2$       D]  $\frac{WL}{12} \left( L - \frac{D}{3} \right)^2$

**Options:**

- 1) [1] Only
- 2) [2] Only
- 3) [3] Only
- 4) [4] Only

**Correct Answer:** [1] Only

QID : 184 - The breadth of a ribbed slab containing two bars must be between

**Options:**

- 1) 6 cm to 7.5 cm
- 2) 8 cm to 10 cm
- 3) 10 cm to 12 cm
- 4) None of these

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**Correct Answer:** 8 cm to 10 cm

**QID :** 185 - A foundation rests on which of the following?

**Options:**

- 1) base of the foundation
- 2) sub grade
- 3) foundation soil
- 4) Both Sub grade and foundation soil

**Correct Answer:** Both Sub grade and foundation soil

**QID :** 186 - Which of the following statements is true?

**Options:**

- 1) To ensure uniform pressure distribution, the thickness of the foundation is kept uniform throughout
- 2) To ensure uniform pressure distribution, the thickness of the foundation is increased gradually towards the edge
- 3) To ensure uniform pressure distribution, the thickness of the foundation is decreased gradually towards the edge
- 4) To ensure uniform pressure distribution, the thickness of the foundation is kept zero at the edge

**Correct Answer:** To ensure uniform pressure distribution, the thickness of the foundation is decreased gradually towards the edge

**QID :** 187 - The weight of a foundation is assumed as which of the following?

**Options:**

- 1) 5% of wall weight
- 2) 7% of wall weight
- 3) 10% of wall weight
- 4) 12% of wall weight

**Correct Answer:** 10% of wall weight

**QID :** 188 - If the width of the foundation for two equal columns is restricted, the shape of the footing generally adopted is

**Options:**

- 1) Square
- 2) rectangular



3) trapezoidal

4) triangular

**Correct Answer:** rectangular

**QID :** 189 - Maximum shear stress theory for the failure of a material at the elastic limit is known as

**Options:**

1) Guest's or Tresca's theory

2) St.Venant's theory

3) Rankine's theory

4) Haig's theory

**Correct Answer:** Guest's or Tresca's theory

**QID :** 190 -

If permissible compressive stress in concrete is  $50 \text{ kg/cm}^2$ , tensile stress in steel is  $1400 \text{ kg/cm}^2$  and modular ratio is 18, the depth of the beam is

अगर कंक्रीट में अनुमत सम्पीड़न प्रतिबल  $50$  किग्रा/सेमी<sup>2</sup> है, इस्पात में तनन प्रतिबल  $1400$  किग्रा/सेमी<sup>2</sup> है और प्रमापीय अनुपात  $18$  है, तो बीम की गहराई है

$$1] d = \sqrt{\frac{0.11765 \times B.M.}{breadth}}$$

$$2] d = \sqrt{\frac{0.22765 \times B.M.}{breadth}}$$

$$3] d = \sqrt{\frac{0.33765 \times B.M.}{breadth}}$$

$$4] d = \sqrt{\frac{0.44765 \times B.M.}{breadth}}$$

**Options:**

- 1) A Only
- 2) B Only
- 3) C Only
- 4) D Only

**Correct Answer:** D Only

**QID :** 191 - When not specified, the volume of steel in R.C.C. work is taken as:-

**Options:**

- 1) 1% to 1.6% of R.C.C. volume
- 2) 2% to 4% of R.C.C. volume
- 3) 4% to 6% of R.C.C. volume
- 4) 0.6% to 1% of R.C.C. volume

**Correct Answer:** 0.6% to 1% of R.C.C. volume

**QID :** 192 - The ratio of maximum shear stress to average shear stress of a circular beam is:

- A.  $\frac{2}{3}$
- B.  $\frac{3}{2}$
- C.  $\frac{3}{4}$
- D.  $\frac{4}{3}$

**Options:**

- 1) A Only
- 2) B Only
- 3) C Only
- 4) D Only

**Correct Answer:** D Only

**QID :** 193 - The property of a material by which it can be beaten or rolled into plates, is called

**Options:**

- 1) ductility
- 2) plasticity
- 3) elasticity
- 4) None of these

**Correct Answer:** None of these

**QID** : 194 - What is the limit to Poisson's ratio?

**Options:**

- 1) 0.1
- 2) 0.2
- 3) 0.3
- 4) None of these

**Correct Answer:** None of these

**QID** : 195 - Among the following, which is least elastic?

**Options:**

- 1) Iron
- 2) Copper
- 3) Both Copper and Silver
- 4) Rubber

**Correct Answer:** Rubber

**QID** : 196 - Two bars of different materials are of the same size and are subjected to same tensile forces. If the bars have unit elongations in the ratio of 4 : 7, then the ratio of modulus of elasticity of the two materials is

- A. 4:7
- B. 4:10
- C. 16:49

**Options:**

- 1) A Only
- 2) B Only
- 3) C Only
- 4) None of these

**Correct Answer:** None of these

**QID** : 197 - If a composite bar of steel and copper is heated, then the copper bar will be under:

**Options:**

- 1) tension
- 2) shear
- 3) torsion
- 4) None of these

**Correct Answer:** None of these

**QID :** 198 - Pick up the incorrect statement from the following : The torsional resistance of a shaft is directly proportional to

**Options:**

- 1) modulus of rigidity
- 2) angle of twist
- 3) reciprocal of the length of the shaft
- 4) moment of inertia of the shaft section.

**Correct Answer:** moment of inertia of the shaft section.

**QID :** 199 - Net sectional area of a tension member, is equal to its cross section area\_\_\_\_\_.

**Options:**

- 1) plus the area of the rivet holes
- 2) divided by the area of rivet holes
- 3) multiplied by the area of the rivet holes
- 4) minus the area of the rivet holes

**Correct Answer:** minus the area of the rivet holes

**QID :** 200 - When a tension member consists of two channel sections, the allowance for rivet hole is made for two holes from

**Options:**

- 1) each web
- 2) each flange
- 3) each web or one hole from each flange whichever is more
- 4) each web or one hole from each flange whichever is less

**Correct Answer:** each web or one hole from each flange whichever is less



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