

**QID: 1** - Which one of the following brick is suitable for the high-class brick masonry?

**Options:**

- 1) Bull nose bricks
- 2) Jhumb bricks
- 3) Modular bricks
- 4) Under burnt bricks

**Correct Answer:** Modular bricks

**QID: 2** - Which of the following is the correct reason for soaking the brick in water before its use?

**Options:**

- 1) For preventing adsorption of moisture from mortar by bricks
- 2) For reducing air void
- 3) For reducing efflorescence
- 4) For cleaning

**Correct Answer:** For preventing adsorption of moisture from mortar by bricks

**QID: 3** - Which of the following compound affects the ultimate strength of cement?

**Options:**

- 1) Dicalcium silicate
- 2) Tetracalcium alumino-ferrite
- 3) Tricalcium aluminate
- 4) Tricalcium silicate

**Correct Answer:** Dicalcium silicate

**QID: 4** - Refractory bricks are generally used to resist \_\_\_\_\_.

**Options:**

- 1) chemical action
- 2) dampness
- 3) high temperature
- 4) weathering action

**Correct Answer:** high temperature

**QID: 5** - Which of the following is the correct percentage of maximum moisture content based in sand where change in volume is maximum?

**Options:**

- 1) 5%
- 2) 9%
- 3) 12%
- 4) 15%

**Correct Answer:** 5%

**QID: 6** - Which one of the following cement is best for the marine works?

**Options:**

- 1) Blast furnace slag cement
- 2) High alumina cement
- 3) Low heat Portland cement
- 4) Rapid hardening cement

**Correct Answer:** Blast furnace slag cement

**QID: 7** - Which of the following is limit of the moisture content that can be achieved in the air drying process of timber?

**Options:**

1) 10%

2) 15%

3) 20%

4) 28%

**Correct Answer:** 15%

**QID: 8** - Which of the following proportion of cement and standard sand is used in cement mortar while testing the compressive and tensile strength of cement?

**Options:**

1) 1:2

2) 1:3

3) 1:4

4) 1:6

**Correct Answer:** 1:3

**QID: 9** - Which of the following is the important factor that affects the shrinkage of cement concrete?

**Options:**

1) Quantity of cement

2) Size of coarse aggregates

3) Size of the fine aggregate

4) Amount of water added during mixing of concrete

**Correct Answer:** Amount of water added during mixing of concrete

**QID: 10** - Calculate the proportion (in percentage) of fine aggregate in combined aggregate so that the fineness modulus of the combined aggregate becomes 6.4. The fineness modulus of coarse aggregate and fine aggregate in the concrete mix is 7.6 and 2.8 respectively.

**Options:**

1) 20

2) 33.33

3) 35

4) 66.6

**Correct Answer:** 33.33

**QID: 11** - Which of the following unit is used for estimation of D.P.C. work?

**Options:**

1) Number

2) Cubic meter

3) Running meter

4) Square meter

**Correct Answer:** Square meter

**QID: 12** - Calculate the quantity of the sand required (in cubic meter) in 20 cubic meters of reinforced cement concrete (1 : 2 : 4).

**Options:**

1) 2.87

2) 4.4

3) 5.7

4) 8.8

**Correct Answer:** 8.8

**QID: 13** - Deduction at cross 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:** thickness of wall

**QID: 14** - Calculate the quantity of the earth works in cubic meter for a canal embankment of 100 m long having cross section areas at the two sections are 20 square meters and 80 square meters. Use trapezoidal method.

**Options:**

1) 2000

2) 5000

3) 7000

4) 10000

**Correct Answer:** 5000

**QID: 15** - Accuracy in measurement of the area should be \_\_\_\_\_.

**Options:**

1) 1 square centimeter

2) 10 square centimeter

3) 100 square centimeter

4) 1 square meter

**Correct Answer:** 100 square centimeter

**QID: 16** - For estimation of painted area of corrugated asbestos cement sheets, percentage increase in area above the painted area is \_\_\_\_\_.

**Options:**

1) 10%

2) 14%

3) 20%

4) 25%

**Correct Answer:** 20%

**QID: 17** - Which of the following is the purpose of the valuation?

**Options:**

1) Approximate estimation of cost

2) Analysis of rate

3) Detailed estimation of cost

4) Taxation

**Correct Answer:** Taxation

**QID: 18** - An electric generator is installed in the building at a cost of Rs. 50,000. Calculate the annual sinking fund (Rs.) required to be deposited to accumulate the whole amount of 5% compound interest. Assume the life of the electric generator as 10 years.

**Options:**

1) 1535

2) 30695

3) 3975

4) 79503

**Correct Answer:** 3975

**QID: 19** - No deduction is made for opening in estimation of masonry work up to \_\_\_\_\_

**Options:**

1) 1 square centimeter

2) 10 square centimeter

3) 100 square centimeter

4) 1000 square centimeter

**Correct Answer:** 1000 square centimeter

**QID: 20** - Calculate the weight (kg) per meter length of 25 mm diameter steel bar place at a spacing of 250 mm center by center for 1 meter.

**Options:**

1) 0.96

2) 3.85

3) 7.7

4) 15.43

**Correct Answer:** 15.43

**QID: 21** - Which one is the upper limit of survey area (square kilometer) for use of plane survey?

**Options:**

1) 250

2) 300

3) 350

4) 450

**Correct Answer:** 250

**QID: 22** - Which one is the smallest scale?

**Options:**

1) 1 : 100

2) 1 : 500

3) 1 : 1,000

4) 1 : 2,500

**Correct Answer:** 1 : 2,500

**QID: 23** - A line of true length 398 m when measured by a chain of 20 m chain is recorded to be 400 m. What is the actual length of the chain (in m)?

**Options:**

1) 19.9

2) 20.1

3) 20.4

4) 21.5

**Correct Answer:** 19.9

**QID: 124** - Calculate the correction for temperature for a tape of length 'L', if the increase in temperature is 'T' above the standard temperature. The coefficient of the temperature for tape material is 'a'.

**Options:**

1) aT/ L

2) - aT/ L

3) + aTL

4) - aTL

**Correct Answer:** + aTL

**QID: 25** - What is the correct sequence of the temporary adjustment of level?

**Options:**

- 1) Centering, leveling and setting
  - 2) Leveling, setting and centering
  - 3) Setting, centering and leveling
  - 4) Setting, leveling and centering
- Correct Answer:** Setting, centering and leveling

**QID: 26** - The values of whole circle bearing vary from \_\_\_\_\_.

**Options:**

- 1) 0° to 90°
- 2) 0° to 180°
- 3) 0° to 270°
- 4) 0° to 360°

**Correct Answer:**

0° to 360°

**QID: 27** - Which of the following statement is correct for proper adjustment of the theodolite?

**Options:**

- 1) Axis of plate level is perpendicular to the horizontal axis
- 2) Line of collimation is perpendicular to the horizontal axis
- 3) Line of collimation is parallel to the vertical axis
- 4) Line of collimation is perpendicular to the vertical axis

**Correct Answer:** Line of collimation is perpendicular to the horizontal axis

**QID: 28** - Which of the followings are correct for sensitivity of the bubble tube?

**Options:**

- 1) Sensitivity decreases with increase in internal radius of the tube
- 2) Sensitivity decreases with increase in diameter of the tube.
- 3) Sensitivity increases with decrease in length of the tube.
- 4) Sensitivity increases with decrease in viscosity of the liquid.

**Correct Answer:** Sensitivity increases with decrease in viscosity of the liquid.

**QID: 29** - Calculate the curvature correction (in m) if distance between the instrument and staff is 500 m.

**Options:**

- 1) 0.0196
  - 2) - 0.019 6
  - 3) 0.0028
  - 4) - 0.002 8
- Correct Answer:** - 0.0196

**QID: 30** - Calculate the volume of the earthwork (in cubic meter) using trapezoidal method if the cross section areas of the three section of embankment at an interval of 20 m are 40 square meters, 50 square meters and 80 square meters.

**Options:**

- 1) 1067
  - 2) 1700
  - 3) 2200
  - 4) 3200
- Correct Answer:** 2200

**QID: 31** - The \_\_\_\_\_ soil transported by the gravitational forces.

**Options:**

- 1) alluvia l soil
  - 2) colluvia l soil
  - 3) loess
  - 4) till
- Correct Answer:** colluvial soil

**QID: 32** - Which of the following is determined with the help of pycnometer?

**Options:**

- 1) Dry de nsity and specific gravity
  - 2) Void ratio and dry den sity
  - 3) Water content and sp ecific gravity
  - 4) Water content and vo id ratio
- Correct Answer:** Water content and specific gravity

**QID: 33** - The cell pressure and pore water pressure is increased from 0.1 N/sq. m to 0.26 N/sq. m and 0.07 N/sq. m to 0.15 N/sq. m respectively in the triaxial test.

The Skempton's pore pressure parameter is given by\_\_\_\_\_.

**Options:**

- 1) -3
  - 2) -0 .5
  - 3) 0.5
  - 4) 2
- Correct Answer:** 0.5

**QID: 34** - Which one of the following shows time factor (approximate), for 50% degree of consolidation?

**Options:**

- 1) 0.2
  - 2) 0.5
  - 3) 1
  - 4) 2
- Correct Answer:** 0.2

**QID: 35** - Which one of the following is true about ideal fluid?

**Options:**

- 1) It is compressible.
  - 2) It is incompressible.
  - 3) It has high shear force.
  - 4) It has high value of viscosity.
- Correct Answer:** It is incompressible.

**QID: 36** - The diameter of droplet is 0.075 mm. What is the intensity of the pressure (N/sq. cm) developed in the droplet by surface tension of 0.000075 N/mm?

**Options:**

- 1) 0.4
- 2) 0.6
- 3) 0.8
- 4) 1

**Correct Answer:** 0.4

**QID: 37** - A rectangular block of dimensions 2 m x 1 m x 1 m is floating in the water with immersing depth of 0.5 m. What is the weight of block (kN) if unit weight of water is 10 kN/cubic meter.

**Options:**

- 1) 5
- 2) 10
- 3) 15
- 4) 20

**Correct Answer:** 10

**QID: 38** - On which principle equation of continuity is based?

**Options:**

- 1) Conservation of energy
- 2) Conservation of mass
- 3) Conservation of momentum
- 4) All option are correct

**Correct Answer:** Conservation of mass

**QID: 39** - If Reynolds numbers are 1000,000, then what is the approximate value of friction for the smooth pipe?

**Options:**

- 1) 0.1
- 2) 0.01
- 3) 0.001
- 4) 0.0001

**Correct Answer:** 0.01

**QID: 40** - Which one of the following is correct for impulse turbine?

**Options:**

- 1) Always operates in submerged condition
- 2) Converts pressure head into velocity with the help of vanes
- 3) Operates by initial complete conversion to kinetic energy
- 4) Operates by initial complete conversion to potential energy

**Correct Answer:** Operates by initial complete conversion to kinetic energy

**QID : 141** - When the water drawn from the central hole made in wash hand basin, the type of flow of water is \_\_\_\_\_.

**Options:**

- 1) forced vortex
- 2) free vortex
- 3) tangential flow
- 4) transitional flow

**Correct Answer:** free vortex

**QID: 42** - Which of the following turbine is suitable to generate the power of 10,000 hp, working at the speed of 500 rpm under a head of 81 m?

**Options:**

- 1) Propeller
- 2) Francis
- 3) Kaplan
- 4) Pelton

**Correct Answer:** Francis

**QID: 43** - Calculate the specific energy (m-kJ/kg) of the flow if the velocity of flow is 2.22 m/s and depth of flow is 1 m.

**Options:**

- 1) 1.25
- 2) 2.22
- 3) 3.22
- 4) 4.22

**Correct Answer:** 1.25

**QID: 44** - The sphere of diameter 0.02 m is falls in the fluid of kinematic viscosity 10 stokes with the terminal velocity of 0.02 m/s. What is the value of coefficient of drag on the falling sphere?

**Options:**

- 1) 40
- 2) 60
- 3) 80
- 4) 100

**Correct Answer:** 60

**QID: 45** - As one moves from head of the canal to the field, the duty of the water \_\_\_\_\_.

**Options:**

- 1) decreases
- 2) either increases or decreases
- 3) increases
- 4) remains constant

**Correct Answer:** increases

**QID: 46** - Which of the following is the correct assumption of the Kennedy's theory?

**Options:**

- 1) Shape of regime channel is semicircular.
- 2) Silt is in suspension due to buoyancy force.
- 3) Silt is in suspension due to eddy formed from bottom of channel.
- 4) Silt is in suspension due to eddy formed from wetted perimeter of channel.

**Correct Answer:** Silt is in suspension due to eddy formed from bottom of channel.



**QID: 47** - What is the value of the lateral coefficient of the friction as per the IRC?

**Options:**

- 1) 0.007
- 2) 0.01
- 3) 0.15
- 4) 0.3

**Correct Answer:** 0.15

**QID: 48** - Calculate the safe stopping sight distance (in m) for the descending gradient of 3% for a design speed of 80 km/h. Take coefficient of friction as 0.35 and total reaction time as 2 seconds.

**Options:**

- 1) 110.82
- 2) 123.26
- 3) 1018.4 1
- 4) 1092

**Correct Answer:** 123.26

**QID: 49** - Which of the following is the minimum limit (ppm) of the dissolved oxygen that must be in the water for survival of aquatic life?

**Options:**

- 1) 1
- 2) 4
- 3) 1 0
- 4) 40

**Correct Answer:** 4

**QID: 50** - A stream has flow of 20 cumecs and BOD concentration of 10 mg/l receives the industrial waste water having flow of 1.5 cumecs and BOD concentration of 250 mg/l. What is the BOD concentration (mg/l) of stream at downstream point of meeting of stream with industrial waste?

**Options:**

- 1) 2.67
- 2) 12.0 9
- 3) 13
- 4) 26 .74

**Correct Answer:** 26.74

**QID: 51** - A riveted joint may experience

**Options:**

- 1) shear failure
- 2) shear failure of plates
- 3) bearing failure
- 4) All option are correct

**Correct Answer:** All option are correct

**QID : 152** - If p and d are pitch and gross diameter of rivets, the efficiency ( $\eta$ ) of the riveted joint is given by

**Options:**

- 1)  $\eta = p / (p-d)$
- 2)  $\eta = p / (p+d)$
- 3)  $\eta = (p-d) / p$
- 4)  $\eta = (p+d) / p$

**Correct Answer:**  $\eta = (p-d) / p$

**QID: 53** - If the moment of inertia of a section about its axis is I and its effective sectional area is A, its radius of gyration r about the axis is

**Options:**

- 1)  $r = I/A$
- 2)  $r = \sqrt{I/A}$
- 3)  $r = \sqrt{A/I}$
- 4) None of these

**Correct Answer:**  $r = \sqrt{I/A}$

**QID: 54** - Allowable working stress corresponding to the slenderness ratio of double angles placed back to back and connected to one side of a gusset plate is reduced to

**Options:**

- 1) 50%
- 2) 60%
- 3) 70%
- 4) 80%

**Correct Answer:** 80%

**QID: 55** - According to I.S.: 800 – 1871, lacing bars resist transverse shear equal to \_\_\_\_\_.

**Options:**

- 1) 1.0 % of the axial load
- 2) 2.0 % of the axial load
- 3) 2.5 % of the axial load
- 4) 3.0 % of the axial load

**Correct Answer:** 2.5 % of the axial load

**QID: 56** - Pick up the correct statement from the following

**Options:**

- 1) Loaded columns are supported on column bases
- 2) Column bases transmit the column load to the concrete foundation
- 3) Column load is spread over a large area on concrete
- 4) All option are correct

**Correct Answer:** All option are correct

**QID: 57** - In the composition of good bricks, the total content of silt and clay, by weight, should not be less than:-

**Options:**

- 1) 20%
- 2) 30%
- 3) 50%
- 4) 75%

**Correct Answer:** 50%

**QID: 58** - In factory buildings, the horizontal beams spanning between the wall columns supporting a wall covering are called

**Options:**

- 1) stringers
- 2) trimmers
- 3) girts
- 4) lintels

**Correct Answer:** girts

**QID: 59** - The average shear stress (in kg/cm<sup>2</sup>) for rolled beam section, is

**Options:**

- 1) 845
- 2) 945
- 3) 1025
- 4) 1500

**Correct Answer:** 945

**QID: 60** - Web crippling generally occurs at the point where

**Options:**

- 1) bending moment is maximum
- 2) shearing force is minimum
- 3) concentrated loads act
- 4) deflection is maximum

**Correct Answer:** concentrated loads act

**QID: 61** - The strength and quality of concrete, depends upon:

**Options:**

- 1) grading of aggregates
- 2) surface area of aggregates
- 3) shape of aggregates
- 4) All option are correct

**Correct Answer:** All option are correct

**QID: 62** - The process of adding water to lime to convert it into a hydrated lime is termed as:-

**Options:**

- 1) watering
- 2) baking
- 3) hydration
- 4) slaking

**Correct Answer:** slaking

**QID: 63** - If aggregates completely pass through a sieve of size 75 mm and are retained on a sieve of size 60 mm, the aggregates will be known as elongated aggregate if its length is not less than

**Options:**

- 1) 81.5 mm
- 2) 91.5 mm
- 3) 101.5 mm
- 4) 121.5 mm

**Correct Answer:** 121.5 mm

**QID: 64** - The calcination of pure lime result in:-

**Options:**

- 1) quick lime
- 2) hydraulic lime
- 3) hydrated lime
- 4) fat lime

**Correct Answer:** quick lime

**QID: 65** - Pick up the correct statement from the following

**Options:**

1) An increase in water content must be accompanied by an increase in cement content

2) Angular and rough aggregates reduce the work ability of the concrete

3) Large size aggregates increase the workability due to lesser surface area

4) All option are correct

**Correct Answer:** All option are correct

**QID: 66** - According to I.S. 456, the number of grades of standard concrete mixes are

**Options:**

- 1) 3
- 2) 5
- 3) 6
- 4) 7

**Correct Answer:** 7

**QID: 67** - Curing a concrete for long period ensures better

**Options:**

- 1) volume stability
- 2) strength
- 3) water resistance
- 4) All option are correct

**Correct Answer:** All option are correct

**QID: 68** - The main object of compaction of concrete is

**Options:**

- 1) to eliminate air holes
- 2) to achieve maximum density
- 3) to provide intimate contact between the concrete and embedded materials
- 4) All option are correct

**Correct Answer:** All option are correct

**QID: 69** - Construction joints are provided

**Options:**

- 1) where B.M and S.F are small
- 2) where the member is supported by other member
- 3) at 18 m apart in huge structures
- 4) All option are correct

**Correct Answer:** All option are correct

**QID: 70** - Pick up the correct statement from the following

**Options:**

- 1) Const ruction joints are necessarily planned for their locations
- 2) Expansion joints are provided to accommodate thermal expansion
- 3) Construction joints are provided to control shrinkage cracks
- 4) All option are correct

**Correct Answer:** All option are correct

**QID: 71** - Grading of sand causes great variation in

**Options:**

- 1) workability of concrete
- 2) strength of concrete

3) durability of concrete

4) All option are correct

**Correct Answer:** All option are correct

**QID: 72** - The light weight aggregates are obtained from

**Options:**

1) sedimentary rocks

2) metamorphic rocks

3) igneous rock s

4) volcanic source

**Correct Answer:** volcanic source

**QID: 73** - The bulk density of aggregates depends upon its

**Options:**

1) shape

2) grading

3) compaction

4) All option are correct

**Correct Answer:** All option are correct

**QID: 74** - Batching error means inaccuracy in the quantity of

**Options:**

1) aggregates

2) cement

3) water

4) All option are correct

**Correct Answer:** All option are correct

**QID: 75** - The center needle of the attachment of the Vicat's plunger projects the circular cutting edge by

**Options:**

1) 0.2 mm

2) 0.5 mm

3) 1 mm

4) 5 mm

**Correct Answer:** 0.5 mm

**QID: 76** - The flakiness index of aggregates is the percentage by weight of particles in it whose thickness is less than \_\_\_\_\_.

**Options:**

1) 2/5th of mean length

2) 3/5th of mean length

3) 4/5th of mean length

4) None of these

**Correct Answer:** 3/5th of mean length

**QID: 77** - The field test for the quality of cement consists in putting a small quantity of cement in a bucket containing water. A good quality cement will:

**Options:**

1) immediately dissolve in the water

2) float on the water surface

3) sink to the bottom o f the bucket

4) produce the steam

**Correct Answer:** float on the water surface

**QID: 78** - For the repair of roads

**Options:**

1) low-heat cement is used

2) rapid-hardening cement is used

3) high-alumina cement is used

4) sulphate-resisting cement is used

**Correct Answer:** rapid-hardening cement is used

**QID: 79** - The advantage of reinforced concrete, is due to

**Options:**

1) monolithic character

2) fire-resisting and durability

3) economy because of less maintenance cost

4) All option are correct

**Correct Answer:** All option are correct

**QID: 80** - By over-reinforcing a beam, the moment of resistance can be increased not more than

**Options:**

1) 10%

2) 15%

3) 20%

4) 25%

**Correct Answer:** 25%

**QID: 81** - Spacing of stirrups in a rectangular beam, is

**Options:**

1) kept constant throughout the length

2) decreased towards the center of the beam

3) increased at the ends

4) increased at the center of the beam

**Correct Answer:** increased at the center of the beam

**QID: 82** - The radius of a bar bend to form a hook should not be less than

**Options:**

1) twice the diameter

2) thrice the diameter

3) four times the diameter

4) five times the diameter

**Correct Answer:** twice the diameter

**QID: 83** - Steel bars are generally connected together to get greater length than the standard length by providing

**Options:**

1) straight bar splice

2) hooked splice

3) dowel splice

4) All option are correct

**Correct Answer:** All option are correct

**QID: 84** - The diameter of longitudinal bars of a column should never be less than

**Options:**

1) 6 mm

2) 8 mm

3) 10 mm

4) 12 mm

**Correct Answer:** 12 mm

**QID: 85** - The maximum ratio of span to depth of a slab simply supported and spanning in two directions is

**Options:**

- 1) 25
- 2) 30
- 3) 35
- 4) 40

**Correct Answer:** 35

**QID : 86** - For a continuous slab supported at ends and carried over intermediate beams

**Options:**

- 1) Max. sagging B.M. for the end spans =  $+(wl^2)/10$
- 2) Max. hogging B.M. over penultimate supports is equal to  $-(wl^2)/10$
- 3) Max. sagging B.M. for the interior spans =  $+(wl^2)/12$
- 4) All option are correct

**Correct Answer:** All option are correct

**QID: 87** - The advantage of a concrete pile over a timber pile is

**Options:**

- 1) no decay due to termites
- 2) no restriction on length
- 3) higher bearing capacity
- 4) All option are correct

**Correct Answer:** All option are correct

**QID: 88** - A raft foundation is provided if its area exceeds the plan area of the building by.

**Options:**

- 1) 10%
- 2) 20%
- 3) 30%
- 4) 50%

**Correct Answer:** 50%

**QID: 89** - The forces in the members of simple trusses may be analysed by

**Options:**

- 1) graphical method
- 2) method of joints
- 3) method of sections
- 4) All option are correct

**Correct Answer:** All option are correct

**QID: 90** - A rolled steel joist is simply supported at its end and carries a uniformly distributed load which causes a maximum deflection of 10 mm and slope at the ends of 0.002 radian. The length of the joist will be

**Options:**

- 1) 10 m
- 2) 12 m
- 3) 14 m
- 4) 16 m

**Correct Answer:** 16 m

**QID: 91** - A lift of weight W is lifted by a rope with an acceleration f. If the area of cross-section of the rope is A, the stress in the rope is

**Options:**

- 1)  $W(1+f/g)/A$
- 2)  $(1-g/f)/A$
- 3)  $W(2+f/g)/A$
- 4)  $W(2+g/f)/A$

**Correct Answer:**  $W(1+f/g)/A$

**QID: 92** - A material which obeys Hooke's law is subjected to direct stress  $\sigma_0$ . At its elastic limit, which of the following statements is true?

**Options:**

- 1) Strain is equal to  $\sigma_0/E$
- 2) Maximum shear stress =  $\sigma_0/2$
- 3) Strain energy =  $(\sigma_0^2/2E) \times \text{volume}$
- 4) All option are correct

**Correct Answer:** All option are correct

**QID: 93** - Keeping the depth d constant, the width of a cantilever of length l of uniform strength loaded with a uniformly distributed load w varies from zero at the free end and

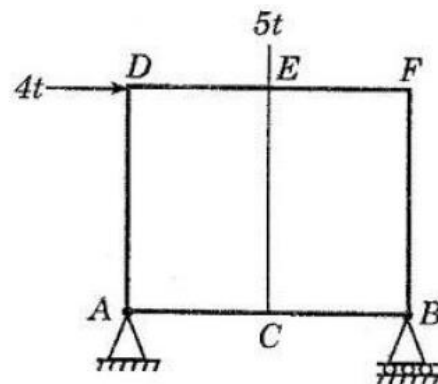
**Options:**

- 1)  $(2w/\sigma d^2) * l^2$  at the fixed end
- 2)  $(3w/\sigma d^2) * l^2$  at the fixed end
- 3)  $(3w/\sigma d) * l^2$  at the fixed end
- 4)  $(5w/\sigma d) * l^2$  at the fixed end

**Correct Answer:**  $(3w/\sigma d) * l^2$  at the fixed end

**QID: 94** -

The force in EC of the truss shown in the figure below is



**Options:**

- 1) zero
- 2) 5t tension
- 3) 5t compression
- 4) 4t tension

**Correct Answer:** 5t compression

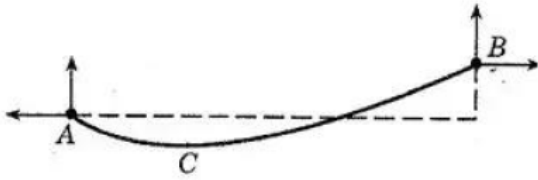
**QID: 95** -



In the cable shown in the figure below, the minimum tension occurs at

4) None of these

**Correct Answer:** anywhere in the rib



**Options:**

**Options:**

- 1) A
- 2) B
- 3) C
- 4) Between A and C

**Correct Answer:** C

**QID: 96** - A shaft is subjected to a bending moment  $M$  and a torque  $T$  simultaneously. The ratio of the maximum bending stress to maximum shear stress developed in the shaft is

**Options:**

- 1)  $M/T$
- 2)  $T/M$
- 3)  $2M/T$
- 4)  $2T/M$

**Correct Answer:**  $2M/T$

**QID: 97** - The shape factor of standard rolled beam section varies from

**Options:**

- 1) 1.10 to 1.20
- 2) 1.20 to 1.30
- 3) 1.30 to 1.40
- 4) 1.40 to 1.50

**Correct Answer:** 1.10 to 1.20

**QID: 98** - In plastic analysis, the shape factor for a triangular section is

**Options:**

- 1) 1.5
- 2) 1.34
- 3) 2.34
- 4) 25

**Correct Answer:** 2.34

**QID: 99** - Shear center of a half circular section of radius  $r$  and of constant thickness, lies at a distance of  $x$  from the center, where  $x$  is

**Options:**

- 1)  $r/\pi$
- 2)  $2r/\pi$
- 3)  $3r/\pi$
- 4)  $4r/\pi$

**Correct Answer:**  $4r/\pi$

**QID: 100** - A three-hinged arch is generally hinged at its supports and

**Options:**

- 1) at one quarter span
- 2) at the crown
- 3) anywhere in the rib