Q :) Consider the following statements. Which of these are correct?

High water to cement ratio in concrete result in

1. Stronger mix

2. Better workable mix

3. Weak mix

4. Less bleeding

(a) 1 and 2

(b) 3 and1

(c) 2 and 3

(d) 1 and 4

Q :) What is the percentage of fine aggregate of fineness modulus 2.6 to be combined with coarse aggregate of fineness modulus 6.8 for obtaining combined aggregate of fineness modulus 5.4?

(a) 30%

(b) 50%

(c) 40%

(d) 60%

Q :) Match List-I (Admixtures) with List-1 (Chemicals) and select the correct answer using the options given below:

List-I	List-II
P. Water –reducing admixture Q. Air-entraining agent R. Super plasticizer S. Accelerator	1. Sulphonated melanin formaldehyde 2. Calcium chloride 3. Lignosulphonate 4. Neutralized vinsol resin

     P Q R S

(a) 2, 4, 1, 3

(b) 1, 3, 4, 2

(c) 3, 4, 1, 2

(d) 3, 4, 2, 1

Q :) As per IS code provision the tolerance on placing of reinforcements in a structural| member having effective depth more than 200 mm shall be:

(a) $\pm$ 20 mm

(b) $\pm$ 10 mm

(c) $\pm$ 15mm

(d) $\pm$ 25mm

Rajasthan JEN (Degree) 2016

Q :) Why is super plasticizer added to concrete?

(i)   To reduce the quantity of mixing water

(ii)   To increase workability

(iii)   To reduce the quantity of cement

(iv)   To increase early age strength

(a)   (1) and (iv)

(b)   (ii) and (iv)

(c)   (i), (i) and (iv)

(d)   (i), (i), (ii) and (iv)

Q :) Fly ash addition to concrete helps in :

(a) Improving workability, pumpability and accelerates early strength gain

(b) Reducing set time of concrete and improves finishibility

(c) Reducing the water demand, reducing the heat of hydration and deleys the setting time of concrete.

(d) Improve pumpability and reduces curing time.

(e) Increasing the bleeding by reducing the heat of hydration.

Q :) If 1000 gms of sand is sieved through 4.75 mm.2.36 mm, 1.18 mm, 600 micron, 300 micron and 150 micron standard sieves and the weights retained are 0 gms. 100 gms, 150 gms, 200 gms, 350 gms and 200 gms respectively, then the fineness modulus of the sand is

(a) 2.00

(b) 2.75

(c) 2.90

(d) 2.60

Q :) To make one cubic meter of 1:2:4 by volume concrete, the volume of coarse aggregate required is

(a) 0.95 m

(b) 0.75 m

(c) 0.85 m

(d) 0.65 m

Q :) If P, Y and Z are the weights of the cement, fine aggregates, and coarse aggregates respectively and WIC is the water cement ratio, the minimum quantity of water to be added to first batch, is obtained by the equation.

(a) $0.1P + 0.3\,Y + 0.1\,Z$ (W/C) x P

(b) $0.2P + 0.5\,Y + 0.1Z = $ (W/C) x P

(c) $0.3\,P + 0.1\,Y + 0.012$ (W/C) x P

(d) $0.5P + 0.3\,Y + 0.01Z = $ (W/C) x P

Q :) The batching accuracy (in %) of water used for mixing concrete should be within:

(a) ±2
(b) ±1
(c) ±5
(d) ±3

Q :) Find the group index of soil for sample passing 0.075 mm, sieve = 60%, liquid limit = 65% and plastic limit= 40%.
(a) 20
(b) 5
(c) 40
(d) None of the given options

DMRC AM 2017

Q :) A soil sample is subjected to laboratory sieve analysis using a complete set of standard Is sieves. Out of 2 kg of soil used in the test, 800 gram was retained on IS 600 micron sieve, 1000 gram was retained on IS 500 micron sieve and the remaining 200 gram was retained on IS 425 micron sieve. The uniformity co-efficient for the soil is:

(a) 1.412

(b) 0.833

(c) 1.2

(d) 0.71

Q :) The drag that permeating water exerts in the upward direction, which in-turn tends to oppose the force of gravity and when water flows upward under the critical hydraulic gradient, it completely neutralizes the force on account of weight of particles, and thus leaves the particles suspended in water. Soil in such a state does not behave like soil but like a very viscous liquid popularly known as:

(a) Quick sand
(b) Effervescence
(c) Bulking
(d) Swelling

Q :) For upstream face of an earth dam, the most adverse condition for stability of slope, is:

(a) sudden draw down.

(b) steady seepage condition.

(c) during construction.

(d) during over flowing.

Q :) The total elongation of the structural element(fixed at one end, free at the other end, and of varying cross-section) as shown in the figure when subjected to load 2P at the free end is

(a) $6.66\dfrac{Pt}{AE}$

(b) $5.55\dfrac{Pt}{AE}$

(c) $4.44\dfrac{Pt}{AE}$

(d) $3.33\dfrac{Pt}{AE}$
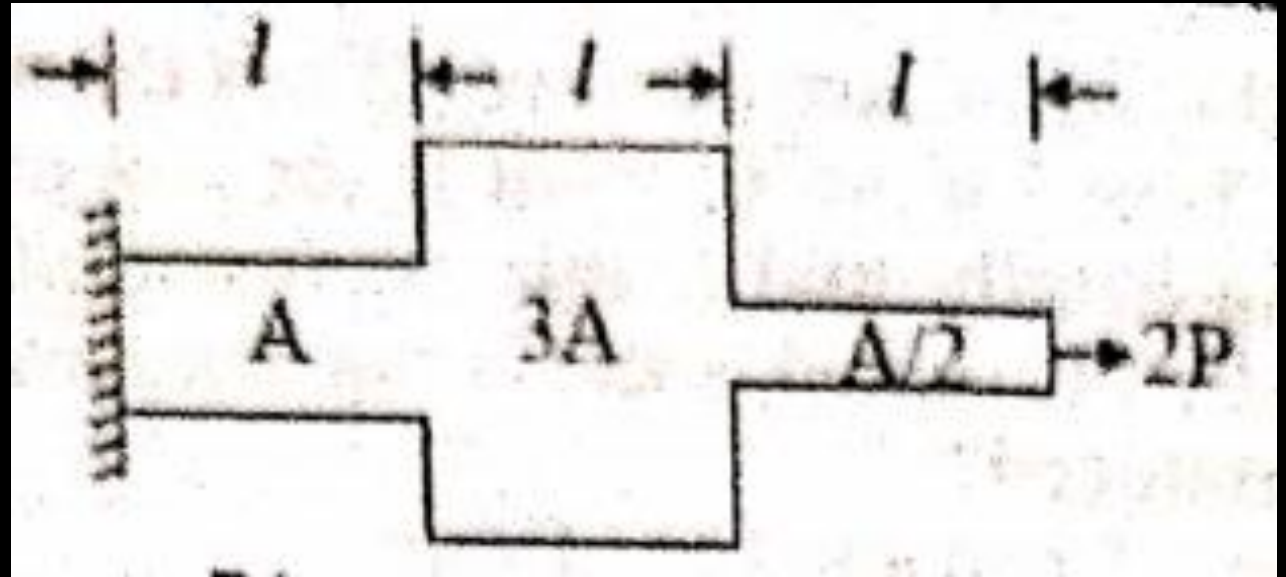
Q :) A standard measure of ductility of a material is
(a) Percent elongation in length
(b) Percent increase in the Area
(c) Percent decrease in the length
(d) Percent decrease in length & increase in Area

ISRO Scientist/Engineer 2014

Q :) In case of a torsional problem the assumption-Plane sections perpendicular to longitudinal axis before deformation remain plane and perpendicular to the longitudinal axis after deformation" holds true for a shaft having

(a) circular cross-section

(b) elliptical cross-section

(c) circular and elliptical cross-section

(d) any cross-section

APPSC AEE (CIVIL/MECHANICAL) 2019

Q :) The width of the strongest beam of rectangular sections that can be cut from a cylindrical log of diameter 40 cm, would be..

(a) 10.41 cm

(b) 16.19 cm

(c) 23.09 cm

(d) 27.53 cm

Q :) The middle third rule in the stability analysis of retaining walls ensures the condition of no..
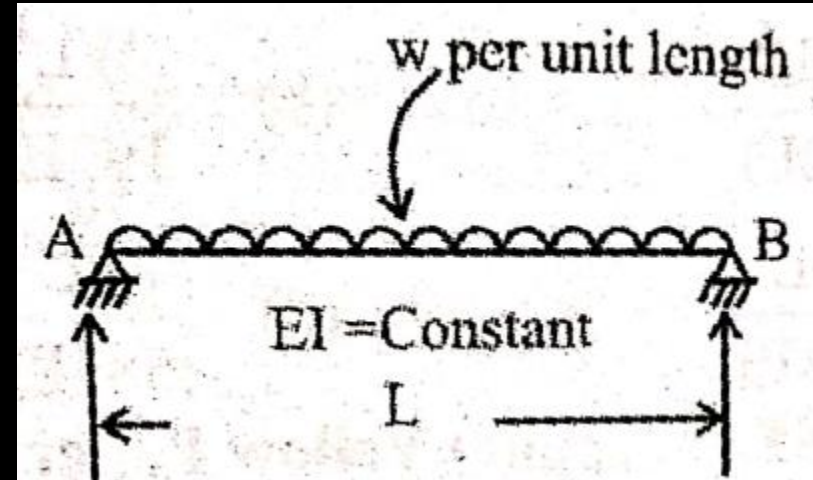(a) Overturning
(b) Compression
(c) Crushing
(d) Tension

Q :) The deflection at the mid span of beam AB unit load method will be-

(a) $wL^4/128EI$

(b) $wL^4/384EI$

(c) $5wL^4/128EI$

(d) None of above

w per unit length

A

B

EI = Constant

L

UKPSC AE 2013 Paper-I

Q :) Match the List-I with List-II and select your correct answer using the codes given below:

| List-I	List-II
A. G.N. Maney B. Hardy cross C. Euler D. Clapeyron	1. Moment distribution 2. Slope deflection method 3. Theorem of three moments 4. Crippling load on column

   A B C D

(a) 2, 1, 4, 3

(b) 1, 2, 3, 4

(c) 1, 2, 4, 3

(d) 2, 1, 3, 4

Q :) A cantilever beam of spam 2 m is shown in the figure. The moment to be applied at the fee end for zero vertical deflection at the point is :

(a) 12 kN-m (anticlockwise)

(b) 16 kN-m (anticlockwise)

(c) 6 kN-m (anticlockwise)

(d) 24 kN-m (anticlockwise)
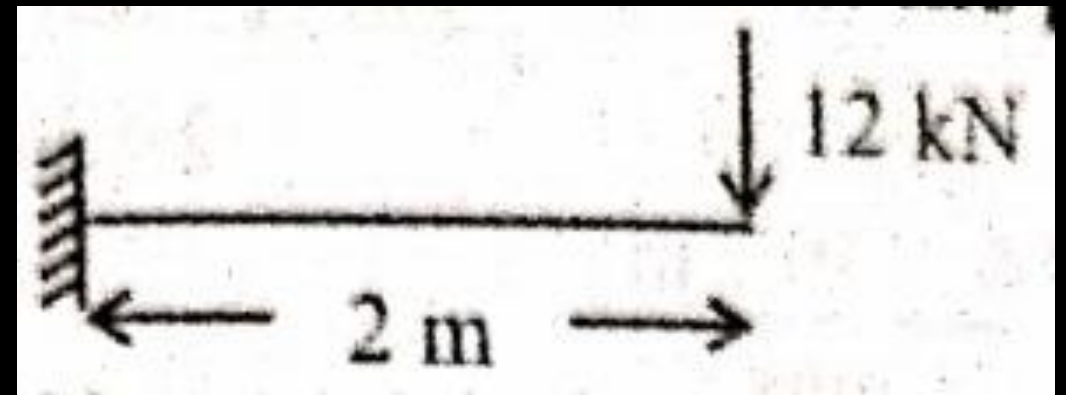
BHLET 2019

Q :) The principle of virtual work is applied to elastic system by considering virtual work done by

(a) Internal forces only

(b) External forces only

(c) Internal as well as external forces

(d) None of the above

Q :) Moment area method is best suitable for finding

(a) Slope and deflection of cantilever beam

(b) Slope and deflection of continuous beam

(c) Deflection of simply supported beam

(d) Slope of fixed beam

GPSC AE January 2018, ESE 2001