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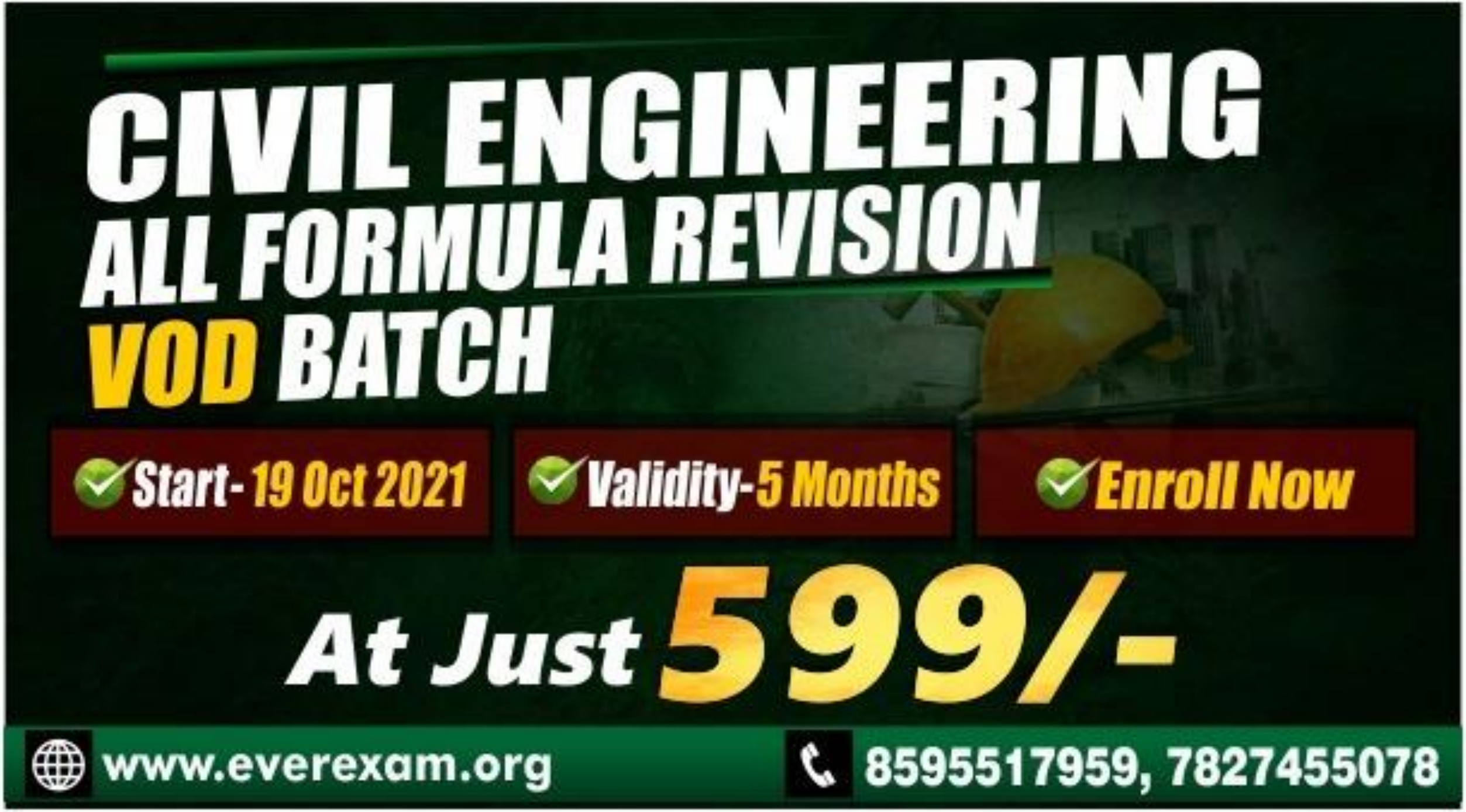
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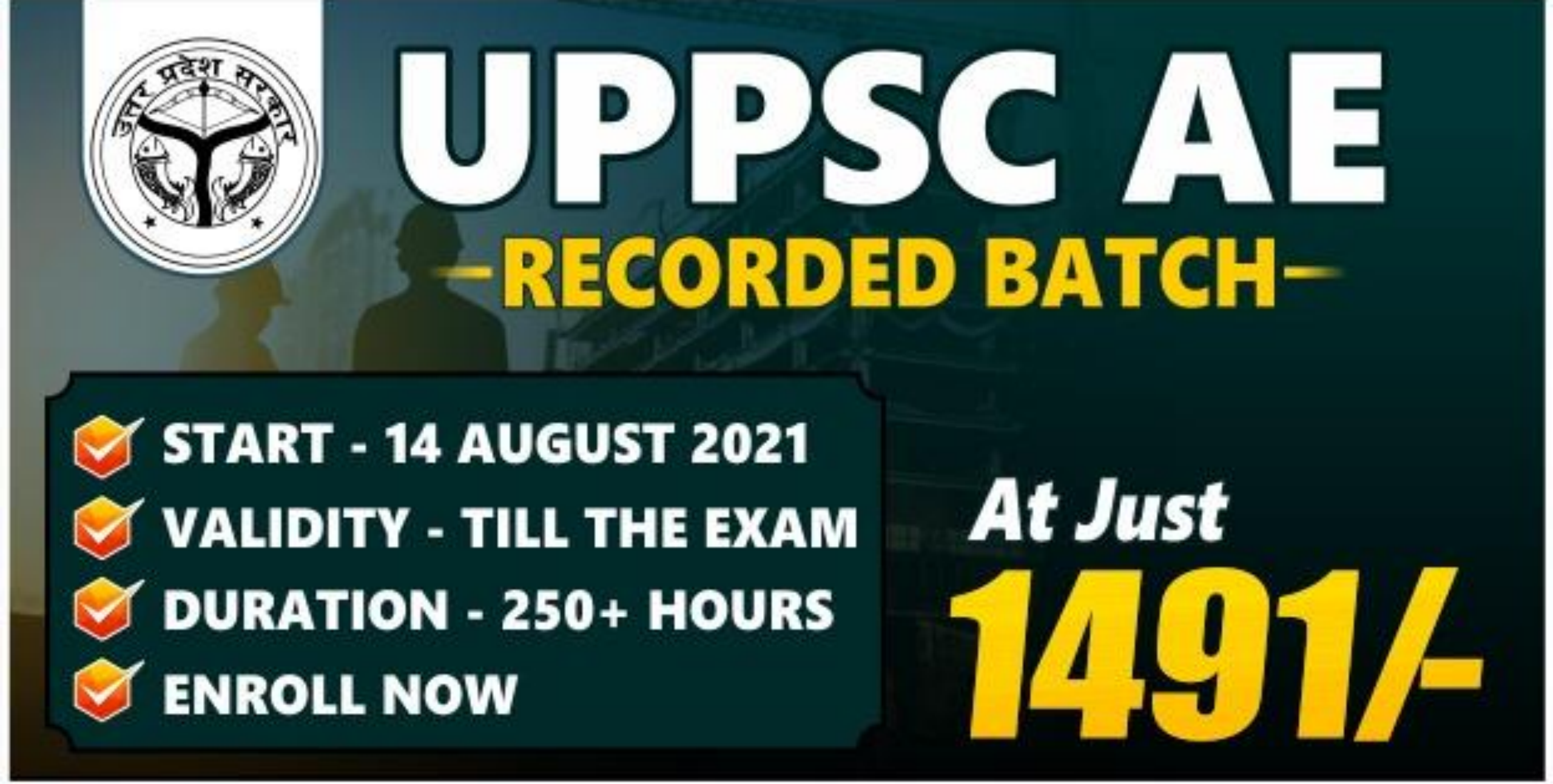
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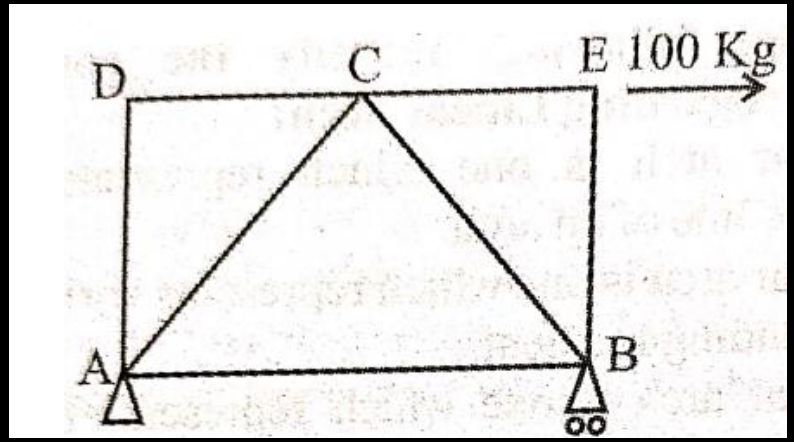
Q : 1) Identify the members with zero member force in the following truss:

A : AD, DC and EB

B : AD, DC and CE

C : AD, AB and AC

D : None of the above



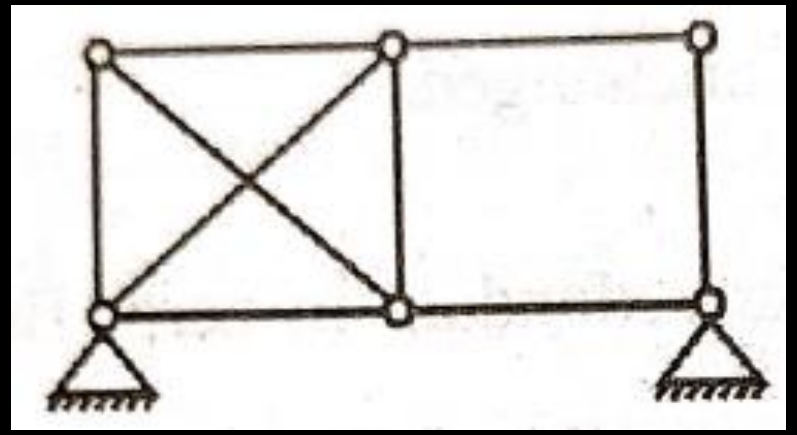
Q : 2) In the truss shown below which statement is correct?

A : Externally unstable

B : Internally unstable

C : Statically determinate structure

D : Statically indeterminate structure



Q : 3) Castigliano's first theorem is applicable

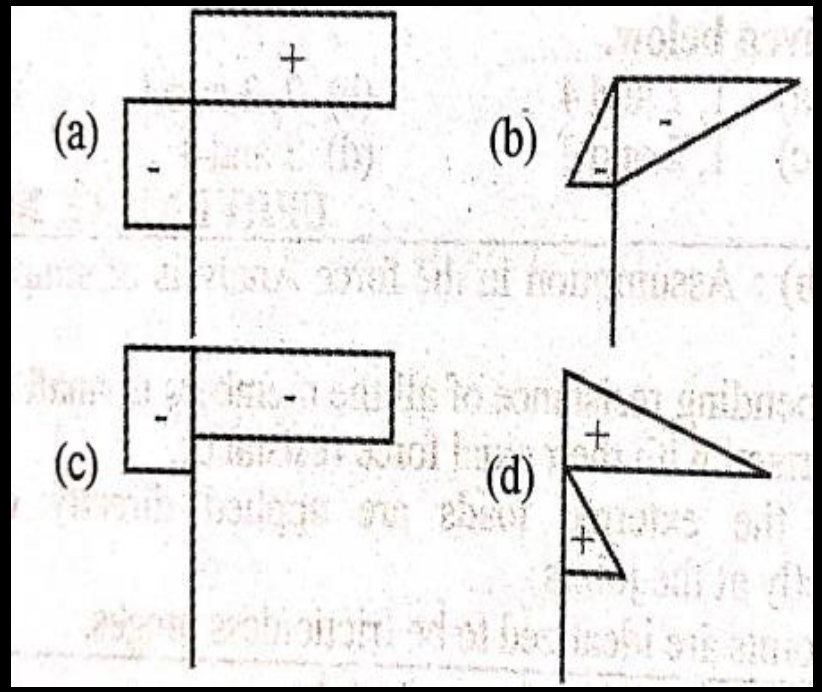
A : For statically determinate structures only

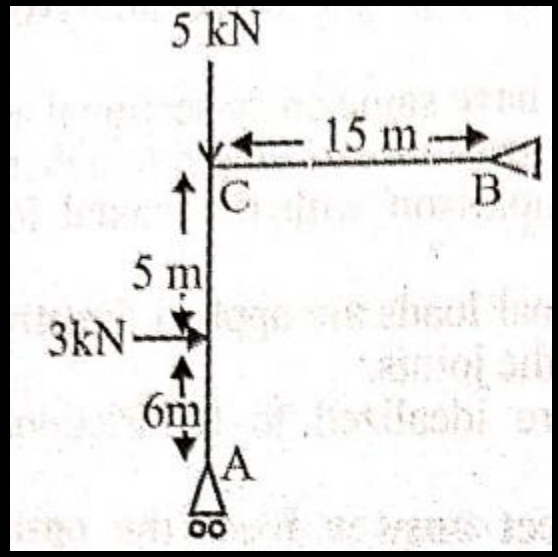
B : When the system behaves elastically

C : Only when principle o superposition is valid

D : For statically indeterminate structures only

Q : 4) Select the shear force diameter for the following beam:





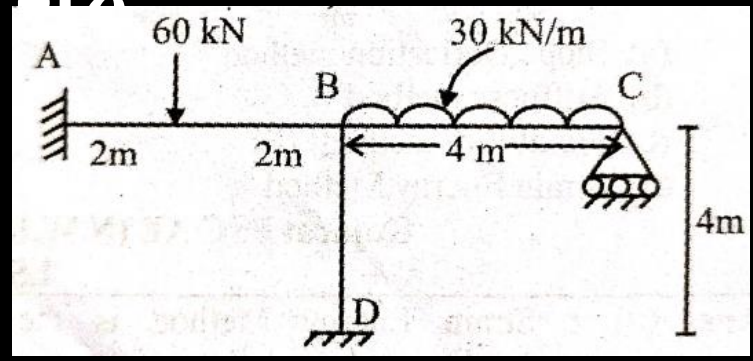
Q : 5) The slope deflection equation at B of member BC for the frame shown in the figure is _____. (Take EI = constant)

A : $M_{BC} = 60 + EI\theta_B$

B : $M_{BC} = -40 + 0.5EI\theta_B + EI\theta_C$

C : $M_{BC} - 40 + EI\theta_B + 0.5EI\theta_C$

D : $M_{BC} = -60 +$



Q : 6) The number of plastic hinges which will cause the overall total collapse of a structure is:

A : One more than the order of static indeterminacy

B : Equal to order of static indeterminacy

C : One less than the order of static indeterminacy

D : Not determinable

Q : 7) The nominal cover requirements for meeting the durability requirement of mild, very severe, severe, moderate, extreme types of exposure are respectively in mm

A : 20,30, 45, 50, 75

B : 20, 45, 30, 50, 75

C : 20, 50, 45, 30, 75

D : 20, 75, 50, 30, 45

Q : 8) The cover of longitudinal reinforcing bar in a beam subjected to sea spray should not be less than which one of the following?

A : 25 mm

B : 40 mm

C : 70 mm

D : 90 mm

Q : 9) The workability of concrete required for the heavily reinforced section in sab, beam and column is:

A : Very low

B : Very high

C : Low

D : Medium

Q : 10) Minimum period before striking soffit formwork to slabs:

A : 21 days

B : 7 days

C : 3 days

D : 1 day

Q : 11) In the fourth amendment may 2013 of IS 456-2000, M60 grade has been shifted to

A : Standard concrete from high strength concrete

B : High strength concrete from high strength standard concrete

C : Standard concrete from an ordinary concrete

D : Ordinary concrete from a standard concrete

Q : 12) The development length of each bar of three bars bundled together is increased by:

A : 0.1

B : 0.2

C : 0.33

D : 0.5

Q : 13) What is the maximum permissible acid soluble chloride content (kg/cum) for reinforced concrete?

A : 1.5

B : 0.6

C : 0.4

D : 3

Q : 14) AS per IS 456 : 2000 the limit of suspended matter in water to be used for construction is

A : 200 mg/l

B : 300 mg/l

C : 2000 mg/l

D : 3000 mg/l

Q : 15) In order to ensure the lateral stability of simply supported beams, the beam shall be so proportioned that the clear distance between the lateral restraints does not exceed ..... Whichever is less.

A : 60 b or $\frac{250\ b^2}{d}$

B : 60 b or $\frac{100\ b^2}{d}$

C : 25 b or $\frac{250\ b^2}{d}$

D : 25 b or $\frac{250\ b^2}{d}$

Q : 16) A continuous beam shall be deemed to be deep beam when, the ratio of effective span to overall depth is less than-

A : 2.0

B : 2.5

C : 1.5

D : 1.0

Q : 17) On which of the following, the support for flat slab is provide?

A : Beams built monolithically above walls

B : Columns built monolithically with slab

C : beams

D : walls

Q : 18) In the design of two way slab restrained at all edges torsional reinforcement required is

A : 0.75 times the area of steel provided at mid span in the same direction

B : 0.375 times the area of steel provided at mid span in the same direction

C : 0.375 times the area of steel provided in the shorter span

D : None of these

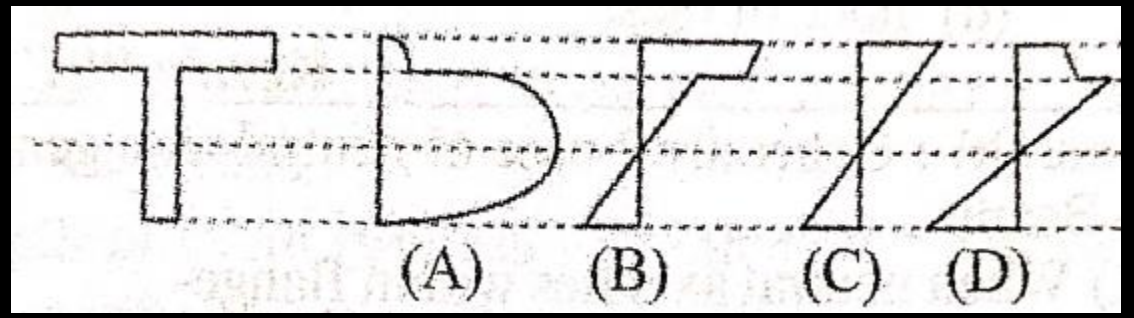
Q : 19) A cast iron beam is a T-section as shown. It is supported and carrying a uniformly distributed load. Which of the following is the correct bending stress distribution diagram if the element is stressed perfectly within plastic limit?

A : A

B : B

C : C

D : D



Q : 20) Effective flange width of a continuous T-beam is-

A : $b_f = \frac{l_o}{6} + b_w + 6\ D_f$

B : $b_f = \frac{l_o}{12} + b_w + 3\ D_f$

C : $b_f = \frac{l_o}{\frac{l_o}{b} + 4} + b_w$

D : $b_f = \frac{0.5\ l_o}{\frac{l_o}{b} + 4} + b_w$

Q : 21) The effective depth of a T beam for heavy loads is taken as

A : $\frac{1}{10}$ of the span

B : $\frac{1}{12}$ of the span

C : $\frac{1}{15}$ of the span

D : $\frac{1}{18}$ of the span

Q : 22) Calculate the pitch of lateral ties for a column of 300 square with 20 mm dia longitudinal bar and 8 mm ϕ lateral tie.

A : 384 mm

B : 320 mm

C : 300 mm

D : 280 mm

Q : 23) A 300 × 300 mm RC column is reinforced with eight bars. Four bars are of 12 mm ϕ and four of 10 mm ϕ. The diameter of lateral ties is 6 mm. The pitch of lateral ties shall be kept as

A : 300 mm

B : 192 mm

C : 160 mm

D : 288 mm

Q : 24) Specify the percentage increase in load carrying capacity (Specified in IS 456) for a column having longitudinal reinforcement tied with spirals as compared to the allowable load for it with lateral ties

A : 10%

B : 20%

C : 25%

D : 5%

Q : 25) Match the minimum number of longitudinal steel bars required in columns as per cross section of column-

A. Rectangular column	1. 4
B. Circular column	2. 5
C. Octagonal column	3. 6
	4. 8

A : (i), (ii), (iii)

B : (i), (iii), (iv)

C : (iv), (iii), (i)

D : (iii), (i), (iv)

Q : 26) In an isolated reinforced concrete footing of effective depth d, the stress in punching shear is checked:

A : At the centre of the column

B : At the face of the column

C : At a distance d/2 away from the face of the column

D : AT a distance d/2 away from the centre of the column

Q : 27) Bolts are most suitable to carry

A : Shear force

B : Bending moment

C : Axial tension

D : Shear force and bending moment

Q : 28) The minimum pitch of the rivet shall not be less than

A : d

B : 1.5 d

C : 2.0 d

D : 2.5 d

Q : 29) Which of the options given below are true about how the commonly used structural steels are made?

1. Very low carbon steels, < 0.1%
2. Low carbon steel 0.1 to 0.25%
3. Medium carbon steel 0.25 to 0.6%
4. High carbon steel 0.6 to 1.1%

A : 1 is true

B : 1 and 2 are true

C : 1, 2 and 3 are true

D : All are true

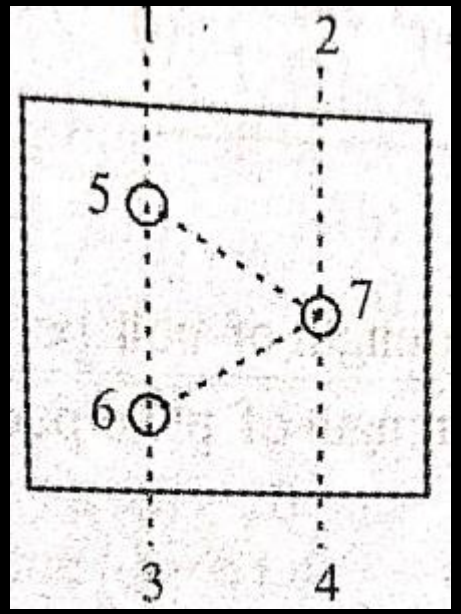
Q : 30) Which section to be considered in the design for the net area of flat ?

A : 1 – 5 – 6 – 3

B : 2 – 7 – 4

C : 1 – 5 – 7 – 4

D : 1 – 5 – 7 – 6 – 3



Q : 31) In case of staggered pitch, pitch may be _____ of values specified for not staggered pitch.

A : Increased by 20%

B : Increased by 50%

C : Decreased by 20%

D : Decreased by 50%

Q : 32) A steel section is subjected to a combination of shear and bending actions. The applied shear force is V and the shear capacity of the section is V_s. For such a section, high shear force as per IS : 800-2007 is defined as

A : $V > 0.45\ V_s$

B : $V > 0.60\ V_s$

C : $V > 0.75\ V_s$

D : $V > 0.90\ V_s$

Q : 33) A standard fillet weld consists of isosceles triangle with which of the following angles?

A : 60 degrees

B : 45 degrees

C : 20 degrees

D : 75 degrees

Q : 34) The effective length of fillet weld should not be less than-

A : Two times weld size

B : Four times weld size

C : Six times weld size

D : Weld size

Q : 35) Effective throat size of a fillet is

A : A function of the angle between the fusion sides

B : Equal to the hypotenuse of the weld triangle

C : The perimeter o the weld divided by the size of the weld

D : 0.707 times the size of the weld

Q : 36) Fillet weld is not recommended if the angle between fusion faces is

1. Less than 45°
2. Greater than 120°
3. Less than 60°
4. Greater than 145°

A : 1 and 2

B : 1 and 4

C : 2 and 3

D : 3 and4

Q : 37) Which one of the following statements is not correct with respect to the properties of cement?

A : Highly reactive Pozzolanas enhance the early age strength of the composite cement

B : Pozzolanic activity refines pore structure which decreases electrolytic resistance of concrete

C : The expansion due to alkali-silica reaction can be controlled by replacement of as high as 60% of OPC with high-calcium Pozzolana

D : Such high amounts of replacement cements result in higher accelerated carbonation depths compared to pure use of OPC only

Q : 38) As per Indian standard code 1077, the burnt clay building bricks having compressive strength less than ____ N/mm^2 are known as common burnt clay bricks

A : 3.5

B : 12.5

C : 30

D : 40

Q : 39) After 24 hours immersion in cold water, water absorption by weight shall not exceed __ percent of the dry weight of the brick.

A : 40

B : 20

C : 25

D : 30

Q : 40) Maximum slenderness ratio as per Indian standard for an unreinforced load bearing wall (using Portland Cement or Portland Pozzolna Cement mortar) is

A : 13

B : 20

C : 27

D : 35

Q : 41) The test conducted for the calculation of basic compressive stress of masonry is:

A : Vibration test

B : Prism test

C : CBR test

D : Slump cone test

Q : 42) Efflorescence test is conducted for burnt clay bricks to find out the

A : Presence of alkaline substance

B : Hardness

C : Soundness

D : Presence of cracks or holes

Q : 43) The apparatus used for determining the Soundness of cement is

A : Slump cone

B : Le Chatelier apparatus

C : Vicat's needle

D : UTM

Q : 44) Cement used for railway sleepers is designated as

A : 40-S

B : 53-S

C : 46-S

D : 48-S

Q : 45) The main constituent of cement which is responsible for initial setting of cement is

A : Dicalcium silicate

B : Tricalcium silicate

C : Tricalcium aluminate

D : None of the given answers

Q : 46) For testing compressive strength of hydraulic cement other than masonry cement as per IS 4031 - Part 6, the size of cube used is

A : 150 mm

B : 100 mm

C : 70.6 mm

D : 50 mm

Q : 47) Plywood has the advantage of

A : Greater tensile strength in longer direction

B : Greates-tensile strength in shorter direction

C : Same tensile strength in both directions

D : None of the given answers

Q : 48) A queen closer is

A : Full brick

B : Longitudinally 1/2 brick

C : 3/4 brick

D : 1/2 brick

Q : 49) The artificial seasoning method that causes timber to become brittle and easy to break is

A : Boiling

B : Chemical seasoning

C : Electrical seasoning

D : Kiln seasoning

Q : 50) The age of tree can be known by examine

A : Cambium layer

B : Annular rings

C : Medullary rays

D : Heart wood

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