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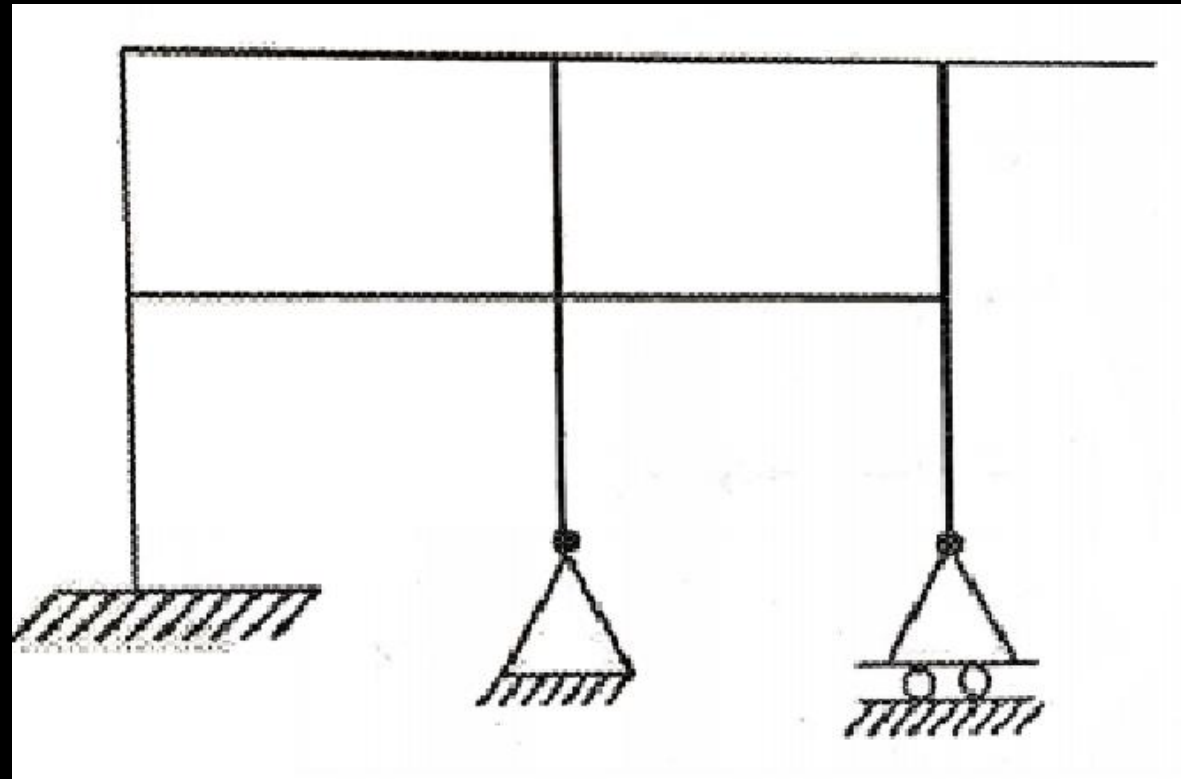
Q :) For the plane frame with an overhang as shown in the figure, assuming negligible axial deformation, the degree of static indeterminacy d , and the degree of kinematic indeterminacy, k , are

A : $d = 3$ and $k = 10$

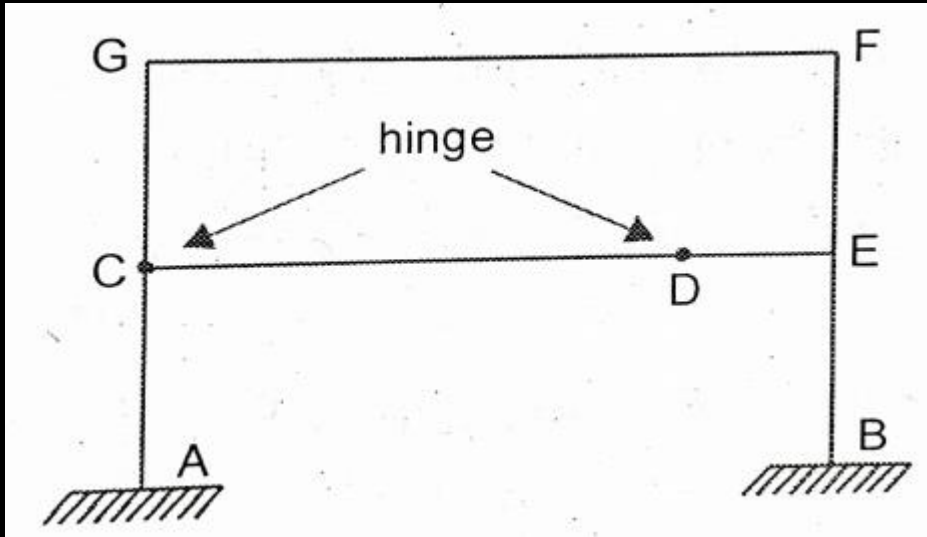
B : $d = 3$ and $k = 13$

C : $d = 9$ and $k = 10$

D : $d = 9$ and $k = 13$



Q :) The static indeterminacy of the structure shown below is



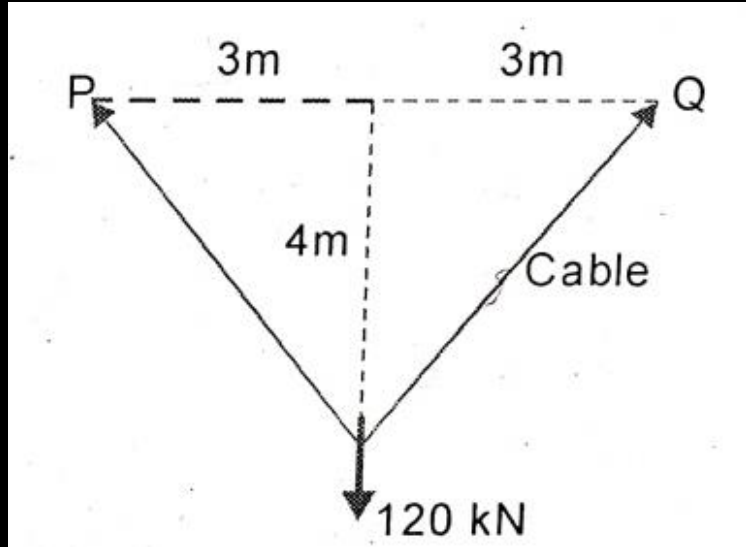
A : Unstable

B : Stable, determinate

C : Stable, 5th degree indeterminate

D : Stable, 3rd degree indeterminate

Q :) The tension (in kN) in a 10 m long cable (neglecting self wt)



A : 120

B : 75

C : 60

D : 45

Q :) In network techniques of construction management optimistic time, pessimistic time and likely time are the types of time estimates under which of the following?

LMRCL (ASST.MANAGER) 15.05.2018

A : CPM

B : Activity

C : PERT

D : Event

Q :) The slope used indicating the rate of increase of decrease in the cost of an activity per unit decrease in time is called-

Hariyana SSC JE Shift-II 2018

A : Cost slope

B : Analysis

C : Increasing slope

D : Decreasing slope

Q :) The full form of VED analysis is-

Hariyana SSC JE Shift-II (11.04.2018)

A : Very essential desirable

B : Vital essential desirable

C : Virtual essential desirable

D : Vital efficient desirable

Q :) The full form of TQM in context of basics of management is:

SSB Himachal Pradesh 18.11.2018

A : Technical quantity management

B : Technical quality management

C : Total quantity management

D : Total quality management

Q :) A dummy activity

Hariyana SSC 13.04.2018 (Afternoon Shift)

A : Required resources

B : Represented by straight bold line

C : Does not require any time

D : All of these

Q :) When time to completion of a project is reduced, it usually results in:

Coal India 2016

A : A decrease in resource deployment

B : An increase in indirect cost

C : A decrease in indirect cost

D : A decrease in taxes

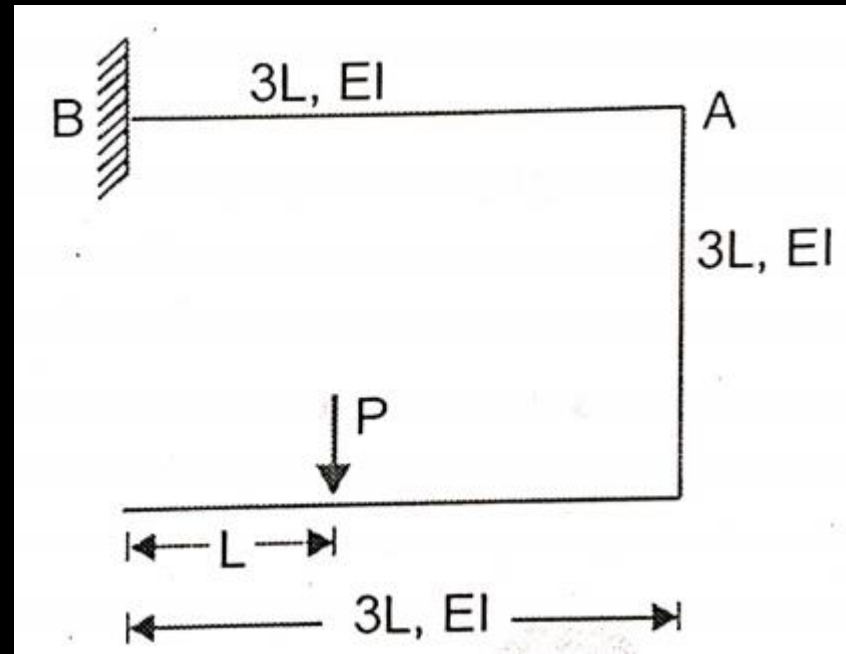
Q :) For the structure shown below, the vertical deflection at point A is given by

A : $PL^3/81EI$

B : $2PL^3/81EI$

C : Zero

D : $PL^3/72EI$



Q :) The moments at the ends 'a' and 'b' of an beam 'ab' where end 'a' is fixed and 'b' is hinged, when the end 'b' sinks by an amount ' δ ' are given as

At the end 'a'	at end 'b'
A : $6 EI\delta/L^2$	$6 EI\delta/L^2$
B : $6 EI\delta/L^2$	0
C : $3 EI\delta/L^2$	$3 EI\delta/L^2$
D : $3 EI\delta/L^2$	0

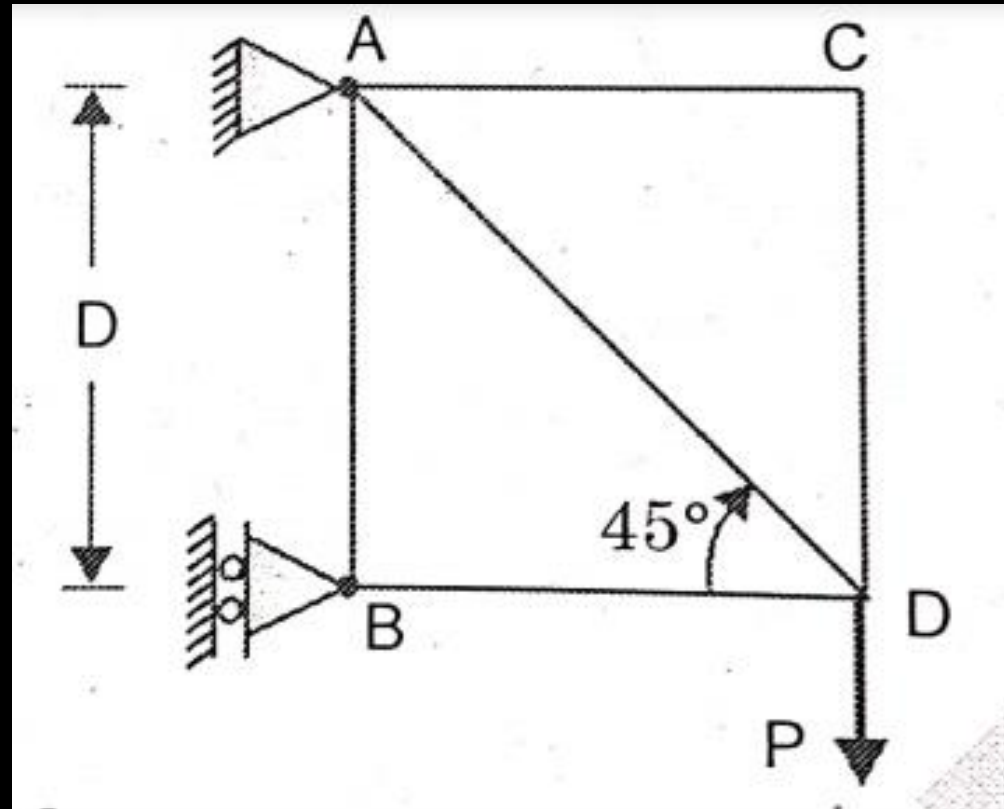
Q :) The strain energy stored in member 'AB' of the pin jointed truss shown aside when 'E' and 'A; are for all members is

A : $2P^2L/AE$

B : P^2L/AE

C : P^2L^2/AE

D : Zero



Q :) Workability of concrete can be measured using slump, compaction factor and vebe time. Consider the following statements for workability of concrete.

(i) As the slump increases, the vebe time increases

(ii) As the slump increases, the compaction factor increases

Which of the following is TRUE?

A : Both (i) and (ii) are true

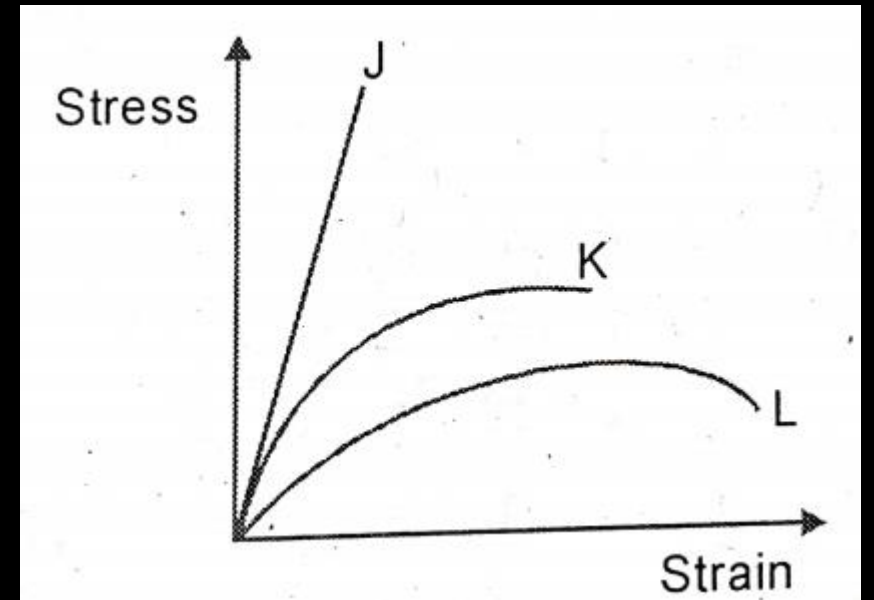
B : Both (i) and (ii) are false

C : (i) is True and (ii) is false

D : (i) is false and (ii) is true

Q :) Group-I contains representative stress-strain curve as shown in the figure while group-II given the list of materials. Match the strain-strain curves with the corresponding materials

Group-I	Group-II
P. Curve J	1. Cement paste
Q. Curve K	2. Coarse aggregate
R. Curve L	3. Concrete



A : P-1, Q-3, R-2

B : P-2, Q-3, R-1

C : P-3, Q-1, R-2

D : P-3, Q-2, R-1

Q :) The basic assumption of plane sections normal to the neutral axis before bending remaining plane and normal to the neutral axis after bending, leads to

A : Uniform stress over the beam cross-section

B : Uniform stress over the beam cross-section

C : Linearly varying strain over the cross-section

D : Stresses which are proportional to strains at the cross-section

Q :) The following two statements are made with reference to a simply supported under-reinforced RCC beam:

I: Failure take place by crushing of concrete before the steel has yielded.

II: The neutral axis moves up as the load is increased.

With reference to the above statements, which of the following applies?

A : Both the statements are false

B : I is true but II is false

C : Both the statements are true

D : I is false but II is true

Q :) The percentage loss of pre-stress due to anchorage slip of 3 mm in a concrete beam of length 30 m, which is post-tensioned by a tendon with an initial stress of 1200 N/mm² and modulus of elasticity equal to 2.1×10^5 N/mm² is

A : 0.0175

B : 0.175

C : 1.75

D : 17.5

Q :) Which one of the following is categorized as a long-term loss of prestress in a prestressed concrete member?

A : Loss due to elastic shortening

B : Loss due to friction

C : Loss due to relaxation of strands

D : Loss due to anchorage slip

Q :) Long term losses of prestress are

A : Loss due to relaxation

B : Shrinkage of concrete

C : Loss due to creep

D : None of these

Q :) As per Indian standard code of practice for pre-stressed concrete (IS : 1343-1980) the minimum grades of concrete to be used for post-tensioned and pre-tensioned structural elements are respectively

A : M-20 for both

B : M-40 and M-30

C : M-15 and M-20

D : M-30 and M-40

Q :) Generally the maximum deflection/span ratio of a steel member should not exceed

A : 1/750

B : 1/500

C : 1/325

D : 1/250

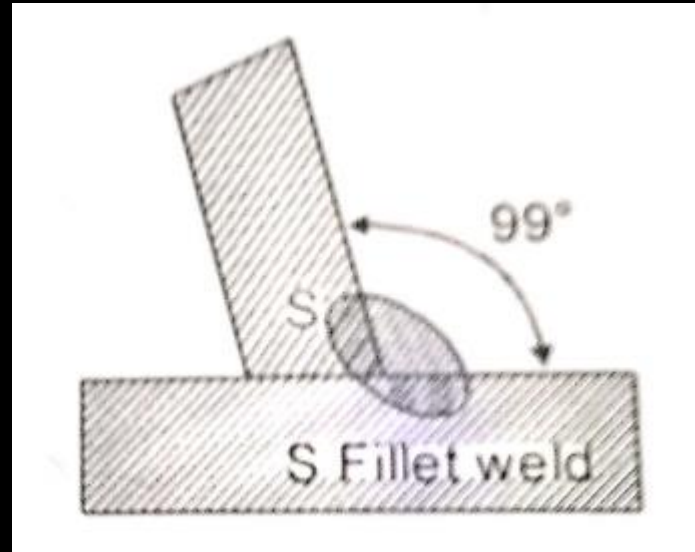
Q :) For the fillet weld of size s shown in the adjoining figure, the effective throat thickness is

A : $0.61 s$

B : $0.65 s$

C : $0.70 s$

D : $0.75 s$



Q :) The problem of lateral buckling can arise only in those steel beams which have

A : Moment of inertia about the bending axis larger than the other

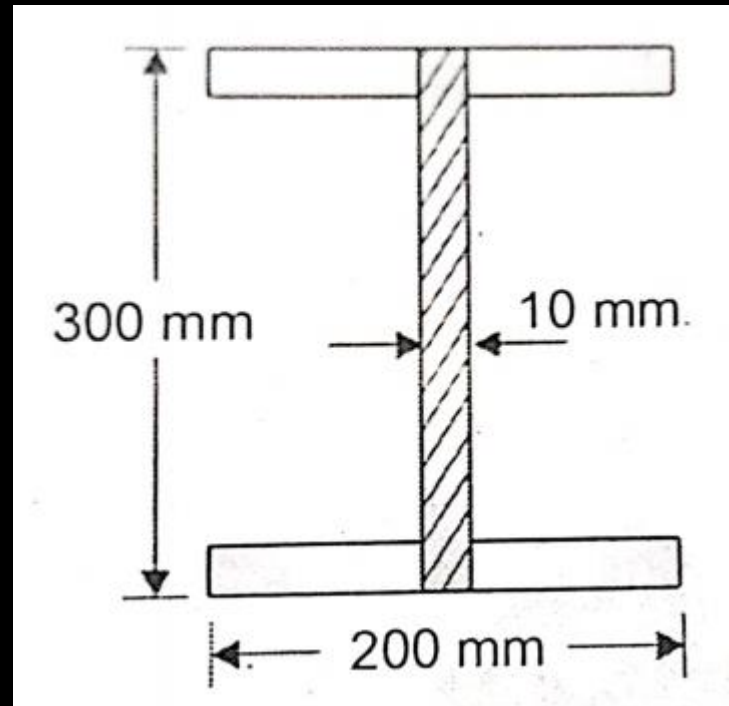
B : Moment of inertia about the bending axis smaller than the other

C : Fully supported compression flange

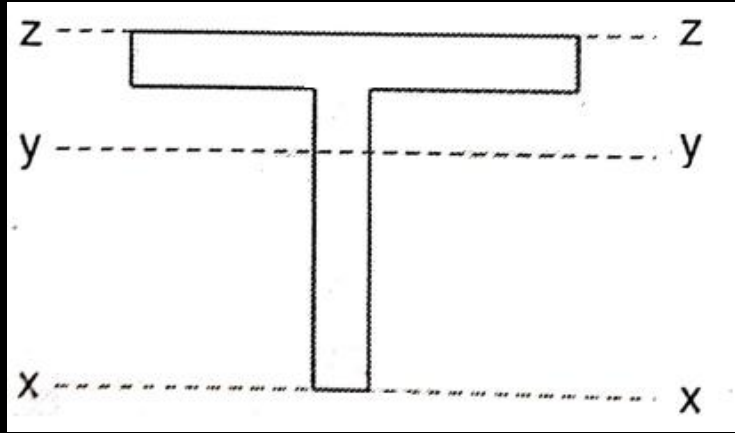
D : None of these

Q :) An unstiffened web I-section is fabricated from a 10 mm thick plate by fillet welding as shown in the figure. If yield stress of steel is 250 mPa, the maximum shear load that section can take is

- A : 750 kN**
- B : 350 kN**
- C : 337.5 kN**
- D : 300 kN**



Q :) If YY is the centroidal axis of a T beam section subjected to plastic moment M_p , the neutral axis lies.



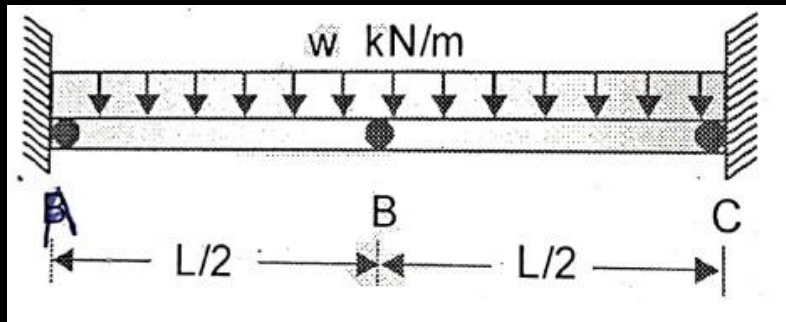
A : Above the line ZZ

B : Between the lines YY and ZZ

C : Between the lines XX and YY

D : Below the line XX

Q :) A steel beam (with a constant EI , and span L) is fixed at both ends and carries a uniformly distributed load (w kN/m), which is gradually increased till the beam reaches the stage of plastic collapse (refer to the following figure). Assuming 'B; to be at mid-span, which of the following is true.



A : Hinges are formed at A, B and C together

B : Hinges are formed at B and then at A and C together

C : Hinges are formed at A and C together and then at B

D : Hinges are formed at A and C only



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