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**Q ) The strain energy in a simply supported beam of span 'L' and flexural rigidity EI due to central concentrated load W is given by:**

**A:**  $\frac{W^2 L^2}{48EI}$

**B:**  $\frac{W^2 L^3}{48EI}$

**C:**  $\frac{96EI}{W^2 L^3}$

**D:**  $\frac{96EI}{W^2 L^3}$

**Q ) In a slab, the minimum reinforcement for Fe 250 provided, is:**

**A: 0.10% of its gross sectional area**

**B: 0.12% of its gross sectional area**

**C: 0.15% of its gross sectional area**

**D: None of these**

**Q ) Whenever the earthquake or wind loading is considered in design of a member, the permissible stresses may be increased by:**

**A: 25%**

**B: 30%**

**C: 35%**

**D: 33.33%**

**Q ) The purpose of lateral ties in short RC columns is to:**

**A: Avoid buckling of longitudinal bars**

**B: Facilitate construction**

**C: Facilitate compaction of concrete**

**D: Increase the load carrying capacity of the columns**

**Q ) For vertical stirrups, the maximum spacing of shear reinforcement measured along the axis of the members shall not exceed:**

**A: 0.70 d**

**B: 0.75 d**

**C: 0.80 d**

**D: 0.90 d**

**Q ) The addition of pozzolana to Portland cement may cause:**

**A: Decrease in early strength**

**B: Increase in early strength**

**C: Decrease in curing time**

**D: Increase in permeability**



**Q ) The most commonly used admixture which prolongs the setting time is:**

**A: Calcium chloride**

**B: Gypsum**

**C: Sodium silicate**

**D: All of these**

**Q ) In ordinary residential buildings, D.P.C. may be provided:**

**A: At ground level**

**B: Between ground level and water table level**

**C: At water table level**

**D: At plinth**

**Q ) The tolerance in the width of mould of a class I brick is about:**

**A:  $\pm 3$  mm**

**B:  $\pm 6$  mm**

**C:  $\pm 10$  mm**

**D:  $\pm 12$  mm**

**Q ) The type of flooring suitable for the use in theatres and public libraries and other places where noiseless floor covering is desired:**

**A: Wooden flooring**

**B: Linoleum flooring**

**C: Cork flooring**

**D: None of these**

**Q ) One of the main disadvantages of the bar chart for construction management is:**

**A: The time schedule is not shown properly**

**B: Progress of the work cannot be monitored**

**C: The financial aspect is not shown**

**D: Does not shown the interdependencies of the activity**

**Q ) Which of the following does not represent an activity?**

**A: Foundation is being dug**

**B: Site located**

**C: The office area is being cleaned**

**D: None of these**

**Q ) A document containing detailed description all the items of work together with their current rates is called:**

**A: Analysis of rates**

**B: Abstract of estimate**

**C: Schedule of rates**

**D: None of these**

**Q ) Work breakdown structure for a construction project will help in:**

**A: Breaking the project into several elements**

**B: Identifying the activities**

**C: Identifying the functional elements of a project and their interrelationship**

**D: None of these**



**Q ) Differential manometers are used to measure:**

**A: Pressure in water channels, pipes etc.**

**B: Difference in pressure at two points**

**C: Atmospheric pressure**

**D: Very low pressure**

**Q ) The soil transported by wind is called:**

**A: Aeolian soil**

**B: Marine soil**

**C: Alluvial soil**

**D: Lacustrine soil**

**Q ) A soil sample is having a specific gravity of 2.6 and void ratio of 0.78. The water content in percentage required to fully saturate the soil at that void ratio is:**

**A: 10%**

**B: 30%**

**C: 50%**

**D: 70%**

**Q ) The ratio of the unconfined compressive strength of undisturbed soil to the unconfined compressive strength of soil in a remoulded state, is called:**

**A: Sensitivity**

**B: Thixotropy**

**C: Relative strength**

**D: None of the above**

**Q ) The ratio of settlement at any time,  $t$  to the final settlement is known as:**

**A: Compression ratio**

**B: Coefficient of consolidation**

**C: Compression index**

**D: Degree of consolidation**

**Q ) The ultimate bearing capacity of a soil, is:**

**A: Load at which soil consolidates**

**B: Load at which soil fails**

**C: Total load on the bearing area**

**D: Safe load on the bearing area**

**Q ) Raft foundation are generally preferred to when the area required for individual footing, is more than:**

**A: 25% of total area**

**B: 30% of total area**

**C: 40% of total area**

**D: 50% of total area**

**Q ) The arrangement of supporting an existing structure by providing supports underneath, is known as:**

**A: Shoring**

**B: Underpinning**

**C: Jacking**

**D: Piling**



**Q ) The most efficient traffic signal is:**

**A: Simultaneous system**

**B: Flexible progressive system**

**C: Simple progressive system**

**D: Alternate system**

**Q ) The error which is not completely eliminated in reciprocal leveling, is:**

**A: Error due to curvature**

**B: Error due to refraction**

**C: Error due to non-adjustment of line of collimation**

**D: Error due to non-adjustment of bubble tube**

**Q ) The contour lines can; cross one another on map only  
in the case of:**

**A: AN overhanging cliff**

**B: A valley**

**C: A ridge**

**D: A vertical cliff**

**Q ) A curve of varying radius is known as:**

**A: Varying curve**

**B: Compound curve**

**C: Transition curve**

**D: Reverse curve**

**Q ) The method of finding out the difference in elevation between two points for elimination the effect of curvature and refraction, is:**

**A: Precise leveling**

**B: Differential leveling**

**C: Reciprocal leveling**

**D: Fly leveling**

**Q ) The horizontal angle between true meridian and magnetic meridian, is known as:**

**A: Convergence**

**B: Magnetic declination**

**C: Bearing**

**D: Dip**

**Q ) A relatively fixed point of known elevation above datum, is called:**

**A: Bench mark**

**B: Datum point**

**C: Reduced level**

**D: Reference point**

**Q ) The curvature of the Earth's surface, is taken into account only if the extent of survey is more than**

**A: 100 sq km**

**B: 160 sq km**

**C: 200 sq km**

**D: 260 sq km**



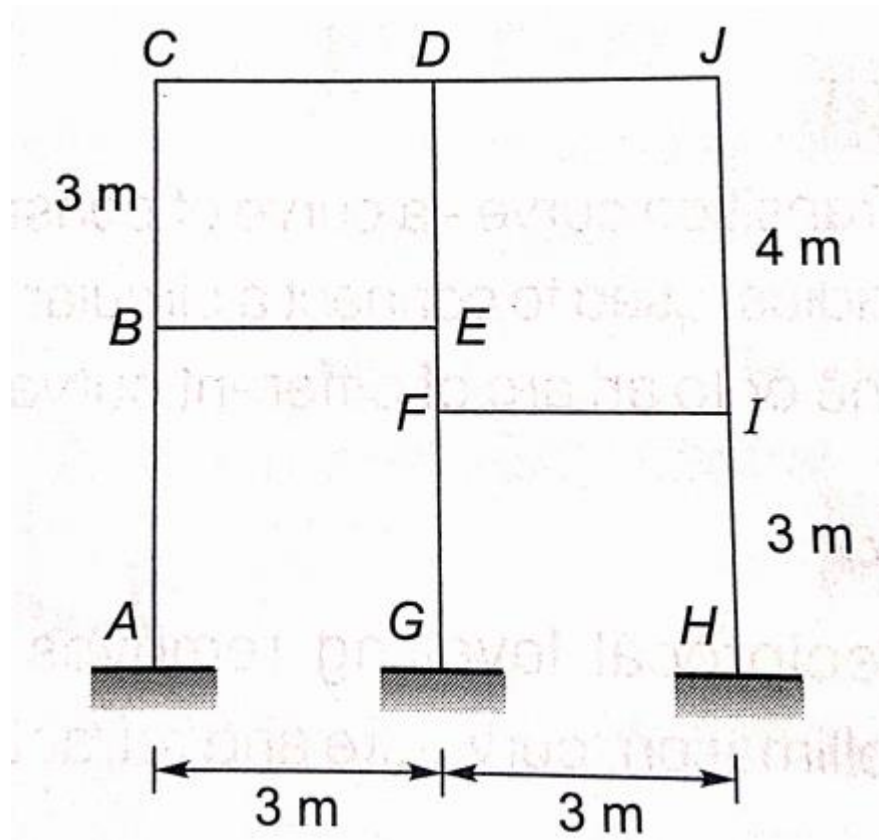
**Q ) Determine the degree of static and kinematic indeterminacy of the frame structure as shown in the figure:**

**A: 15, 8**

**B: 12, 12**

**C: 12, 10**

**D: 15, 9**



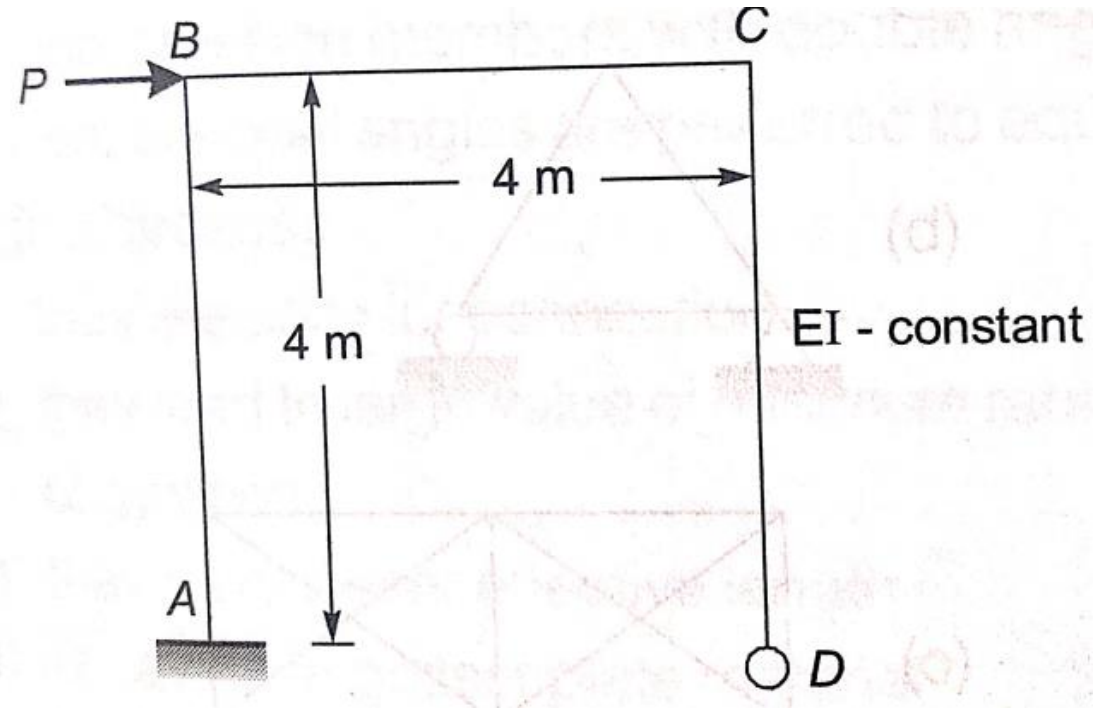
Q ) For the frame shown in the figure, the shear equation is

A:  $\frac{M_{BA} + M_{AB}}{4} + \frac{M_{CD}}{4} + P = 0$

B:  $\frac{M_{BA} + M_{BC}}{4} + \frac{M_{DC}}{4} + P = 0$

C:  $M_{AB} + M_{BA} + M_{CD} + M_{DC} = 0$

D:  $M_{AB} + M_{BA} + M_{CD} + M_{DC} = P$



**Q ) As per the modified classification of road system by the third road development plan, 1981-2001, the roads in the country under 'Primary system' of road network consist of**

**A: Expressways and national highways**

**B: State highways (SH) and Major district roads (MDR)**

**C: Other district roads (ODR) and village roads (VR)**

**D: All of the above**

**Q ) Select the appropriate alternative from the following:  
Soil deposit is called as 'over-consolidated', if**

**A:  $P_o > P_c$**

**B:  $P_o \leq P_c$**

**C:  $P_o = P_c$**

**D:  $P_o < P_c$**

**Where  $P_o$  is the present effective overburden pressure  
and  $P_c$  is preconsolidation pressure.**

**Q ) Which of the following is not a test for measuring workability of concrete?**

**A: Slump test**

**B: Flow test**

**C: Std. consistency test**

**D: Kelly ball test**

**Q ) If a solid shaft is subjected to a torque (T) at its end such that maximum shear stress does not exceed  $f_s$ , the diameter of the shaft will be:**

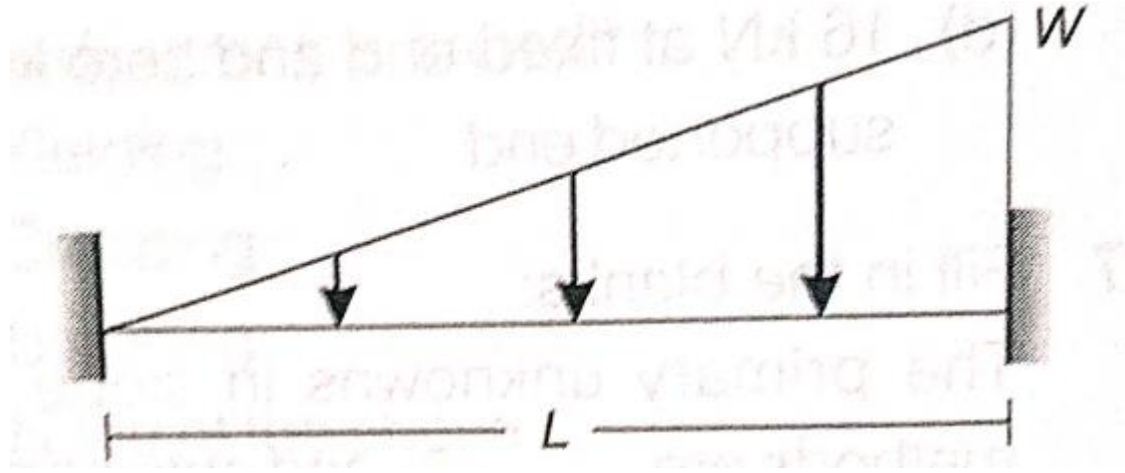
(a)  $\frac{16T}{\pi f_s}$

(b)  $\left(\frac{16T}{\pi f_s}\right)^{\frac{1}{2}}$

(c)  $\left(\frac{16T}{\pi f_s}\right)^{\frac{1}{3}}$

(d) None of these

**Q ) The fixed end moment for the beam loaded is:**



- A:**  $-\frac{WL^2}{10}$  and  $+\frac{WL^2}{20}$
- B:**  $-\frac{WL^2}{30}$  and  $+\frac{WL^2}{20}$
- C:**  $+\frac{WL^2}{20}$  and  $-\frac{WL^2}{30}$
- D:**  $-\frac{WL^2}{15}$  and  $+\frac{WL^2}{15}$

**Q ) In the design of cantilever retaining wall, if the angle of repose ( $\Phi$ ) is  $30^\circ$  Then the relation between active earth pressure ( $K_a$ ) and passive earth pressure ( $K_p$ ) will be:**

**A:  $K_a = \frac{1}{3} K_p$**

**B:  $K_a = 3 K_p$**

**C:  $K_a = \frac{1}{3} K_p$**

**D:  $K_a = 9 K_p$**



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

<b>List - I</b>	<b>List - II</b>
<b>A. Rectangular column</b>	<b>1. 4</b>
<b>B. Circular Column</b>	<b>2. 5</b>
<b>C. Octagonal Column</b>	<b>3. 6</b>
	<b>4. 8</b>

**1. A – 1, B – 2, C – 3**

**2. A – 1, B – 3, C – 4**

**3. A – 4, B – 3, C – 1**

**4. A – 3, B – 1, C – 4**

**Q ) Maximum reinforcement provided in a beam section shall not exceed \_\_\_\_\_.**

**A:  $\frac{0.85}{f_y} (bd)$**

**B:  $\frac{0.87}{f_y} (bd)$**

**C:  $0.04 (bd)$**

**D:  $0.04 (bD)$**



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