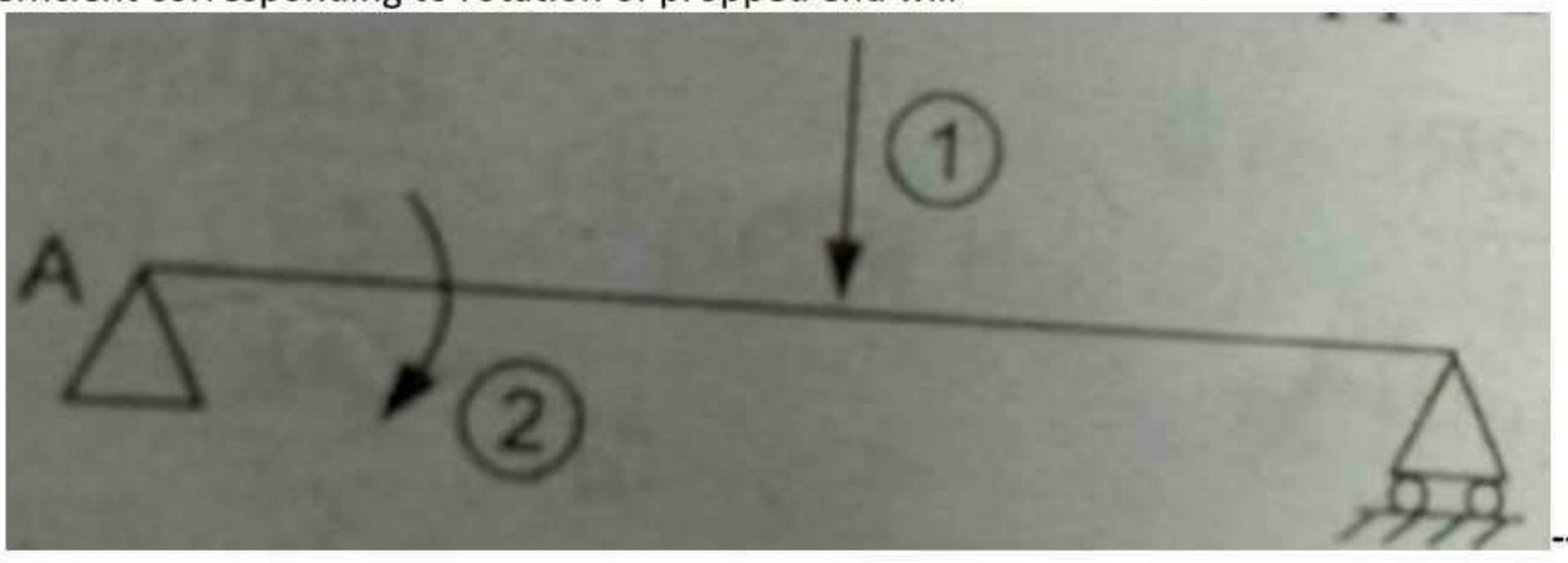
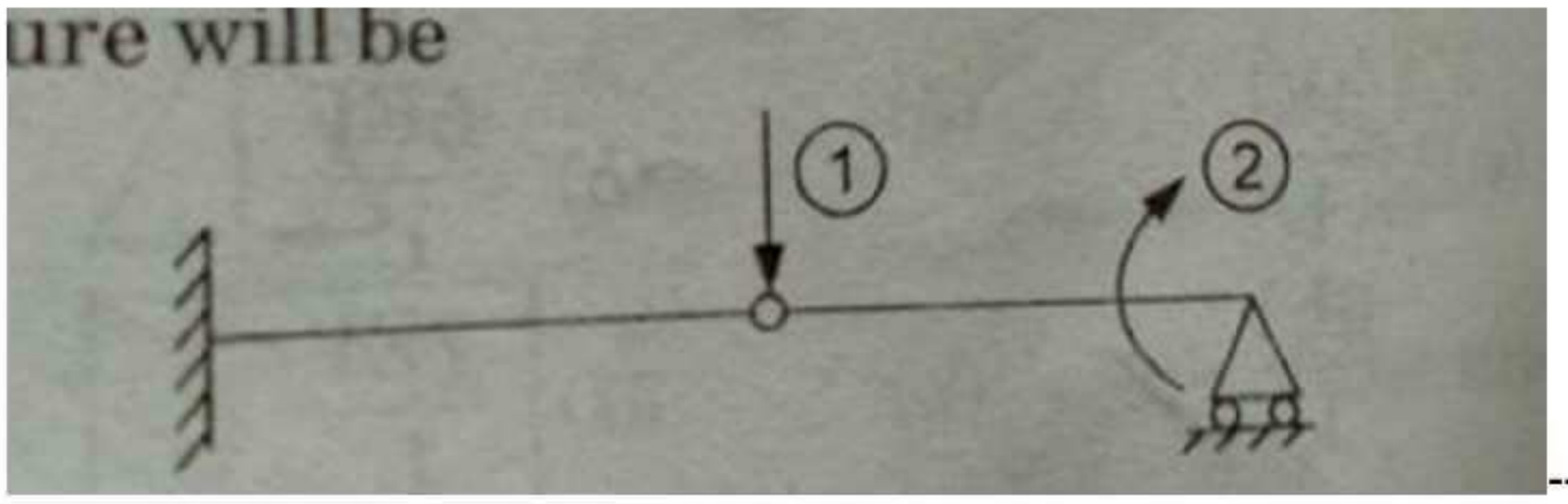
Q)Kanis method uses what type of equations--> **Slope deflection Method**
Q)Sum of the distribution factors at a joint in case of Kanis method--> **1**
Q)The effective length of a column of length L fixed against rotation and translation at one end and free at other end is--> **0.5L**
Q)Which method is more accurate for analysis of structures.--> **Kanis Method**
Q)Sum of the distribution factors for moments due to sway of storey is equal to--> **1.5**
Q)Most accurate method of calculating the moments in a portal frame with sway--> **Kanis Method**
Q)Kanis method is having the advantage of assuming in case of portal frames.--> **Symmetry**
Q)Most accurate method of calculating the moments in a portal frame without sway--> **Kanis Method**
Q)Sum of the rotational factors at a joint in case of Kanis method--> **-0.5**
Q)Most accurate method of calculating the moments in a statically indeterminate beams--> **Kanis Method**
Q)If hinged end of propped cantilever of span L and flexural rigidity EI undergoes rotation then shear in beam will be--> **$6EI\theta/L^2$**
Q)The Stiffnesss k_A and k_B of a non-prismatic beam element are 5EI/L and 6EI/L respectively. If carry over factor C_{AB} is 0.45,then carryover factor C_{BA} will be--> **0.375**
Q)The moment distribution is best suited for--> **Rigid frame**
Q)Sum of the distribution factors for moments due to sway of storey is equal to--> **1.5**
Q)Moment distribution method is also known as--> **Hardy cross Method**
Q)Moment distribution method is accurate and easy method in analyzing of--> **Frames**
Q)Moment Distribution Method was developed by--> **Hardy cross**
Q)Flexibility coefficient of shaft of length L and Torsional rigidity GJ under torsion at mid point will be--> **L/2GJ**
Q)The force required to produce an unit translation (without rotation)of one-third of a fixed beam of span L and of uniform flexural rigidity EI is--> **$734EI/L^3$**
Q)The moment required to rotate near end of prismatic beam through unit angle, with translation, the far end being fixed, will be--> **EI/L**
Q)Due to some point load anywhere on a fixed beam, the maximum free B.M is M. The sum of fixed end moments--> **M**
Q)If the uniform propped cantilever has span L in flexural rigidity EI then flexibility coefficient corresponding to rotation of propped end will



be --> **L/2EI**
Q)Flexibility coefficient f11 for the beam shown in fig.will

be 

--> $L^3/48EI$

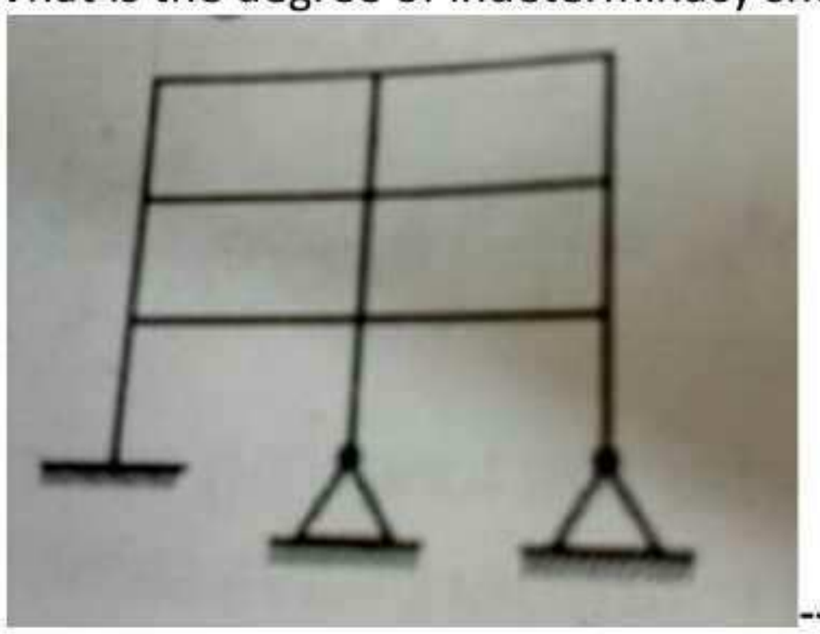
Q)The unknowns being evaluated in kanis method--> **Displacements, rotations and sways of plane frames**

Q)In kanis method hinged column is replaced by an equivalent column fixed at the base with length and stiffness as--> **Same length as original column but stiffness 3/4th of the original column**

Q)The moment distribution method in structural analysis falls in category of--> **Displacement method**

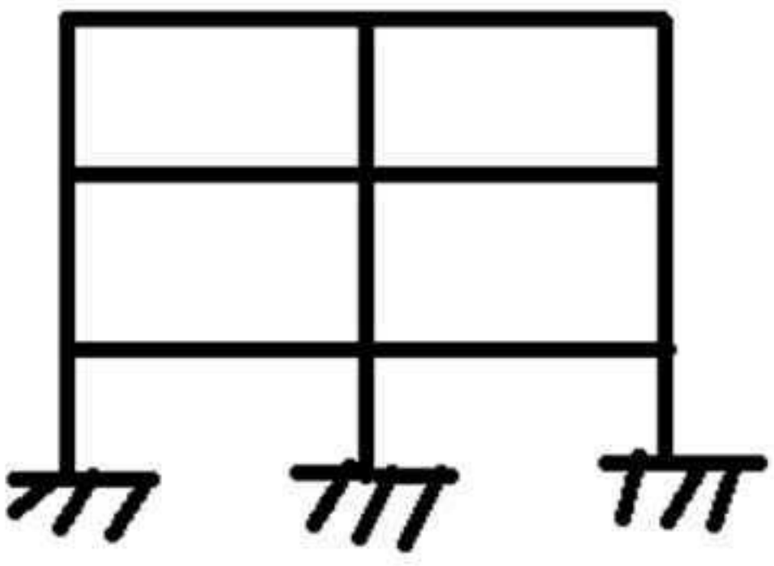
Q)If a point load acting at the mid span of a fixed beam of uniform section produces fixed end moments of 60kNm,then the same load spread uniformly over the entire span will produce fixed end moments equal to (Kn-m)--> **40**

Q)What is the degree of indeterminacy shown in given

fig. 
--> **16**

Q)A beam is hinged at end A and fixed at B. A moment M is applied at end A. What is the moment developed at end B.--> **M/2**

Q)If the free end of a cantilever of span l and flexural rigidity EI undergoes a unit displacement (without rotation), what is the bending moment induces at the fixed end.--> **$6EI/L^2$**

Q)  Which of the following method is used to analyze the above frame--> **Kanis Method**

Q)A Statically indeterminate structure is the one which--> **Can analyzed using equations of**

statics and compatibility equations

Q)The axial deformation neglected, what is kinematic indeterminacy of single bay portal frame fixed at base--> **3**

Q)A propped cantilever AB, with fixed edge at a is propped t B and carries uniformly distributed load over the entire span. If the prop displaces up, which among the following is true if prop reaction R_B and moment at A = M_A--> **R_B will increase and M_A will decrease**

Q)The rigid portal frame having both end fixed, if moment of inertia I_1 for columns and I_2 for beam, then the rigid frame will not have any side sway--> **The loading is symmetrical about its centre line**

Q)Assertion (A): Method of moment distribution is classifiable as a force method Reason (R): The method consists of computing due to end rotation of the member--> **A is false but R is true.**

Q)A single bay, single storey portal frame has a hinged left support and a fixed right support. It is loaded with udl on the beam. Which one of the following statements is true with regard to the deformation of the frame.--> **It would sway to the left side.**

Q)Moment distribution method can be applied to analyze 1. Continuous beams including non prismatic structures. 2. Continuous beams including with prismatic structures. 3. Structures with immediate hinges 4. Rigid frames--> **1,2,3 and 4**

Q)A portal frame with all the members having the same EI, has both end hinged with length of one column is 4m and the length of the other column 3m. The moment at the junction of long column and beam is -40 kN-m. The moment at the other beam column joint is--> **-30 kN-m**

Q)In moment distribution method, the sum of distribution factors of all the members meeting at any joint is always--> **1**

Q)A portal frame with all the members having the same EI, has one end fixed and the other end hinged. Due to side sway, the ratio of fixed end moments would be, if fixed column has twice the length of the hinged column.--> **1:2**

Q)In a rigid portal frame one end is fixed and other end is hinged having EI and 6m for columns and 2EI and 8m length for beam, then distribution factors were--> **0.6, 0.4**

Q)A two span continuous beam ABC is simply supported at A and C and is continuous over support B. Span AB = 6m, BC = 6m. The beam carries a udl of 2t/m over both the spans. EI is constant for the entire beam. The fixed end moment at B in span BA or BC would be--> **9 t-m**

Q)The flexibility of the portal frame with equal length of the columns and beam, with one end fixed and the other end is hinged.--> **2 x 2**

Q)The flexibility co-efficient of the free end of the cantilever is--> **L/EI**

Q)The stiffness co-efficient k_{ij} indicates--> **Force at I due to a unit deformation at j**

Q)Principle of superposition is applicable when--> **deflections are linear functions of applied forces**

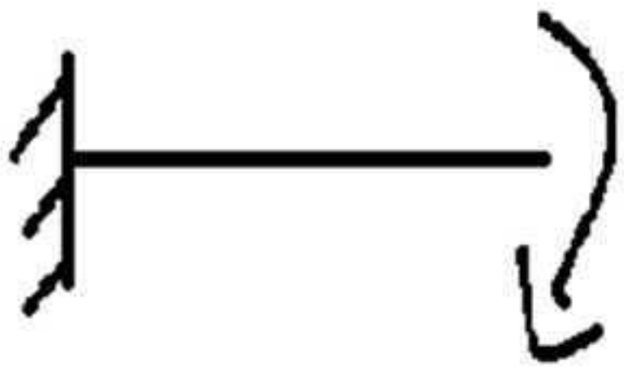
Q)Successive approximations can be used in--> **Moment distribution Method**

Q)The stiffness matrix of a beam element is given as $\frac{2EI}{L}\begin{matrix}2 & 1\\ 1 & 2\end{matrix}$.Then the flexibility matrix is--

> $\frac{L}{6EI}\begin{matrix}2 & -1\\ -1 & 2\end{matrix}$

Q)In a linear elastic structural element--> **stiffness is inversely proportional to flexibility**

Q)The flexible coefficient of the free end of the cantilever for the coordinate shown is



(EI,L) 1--> **A** . $\frac{L}{EI}$

Q)The order for the flexibility matrix for a structure--> **equal to the number of redundant forces**

The size of the flexibility matriax of the frame shown

Q) --

> 2X2

Q)The stiffness coefficient k_{ij} indicates--> **force at i due to a unit deformation at j**

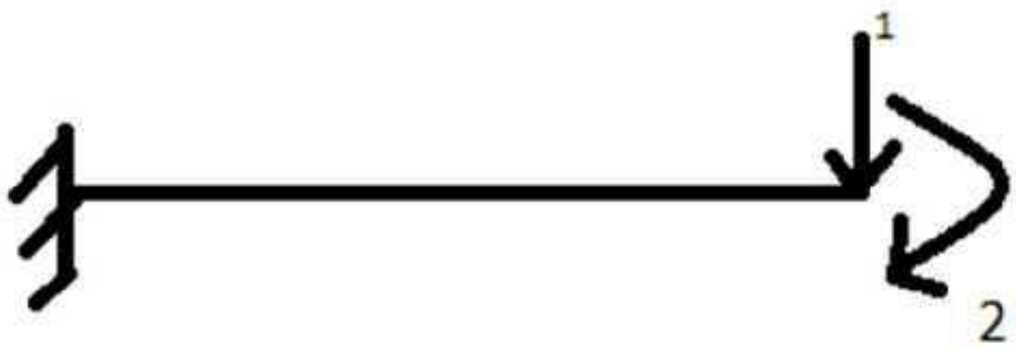
Q)Sinking of an intermediate support of a continuous beami.(i) reduces the negative moment at support (ii). increases the negative moment at support (iii). reduces the positive moment at support (iv). increases the positive moment at the center of span of these statements--> **(i) and (iv) are correct**

Q)To generate the j^{th} column of the flexibility matrix--> **unit force is applied at coordinate j and displacements are calculated at all coordinates**

Q)For linear elastic frame ,if the stiffness matrix is doubled with respect to the existing stiffness matrix ,the deflection of the resulting frame will be--> **half the existing value**

Q)For stable structures ,one of the important properties of flexibility and stiffness matrix is that the elements on the main diagonal i)of a stiffness matrix must be positive ii)of a stiffness matrix must be negative iii)of a flexibility matrix must be positive iv)of a flexibility matrix must be negative The correct answer is--> **(i) and (iii)**

Q)Relation between the stiffness and flexibility matrix--> **inverse**



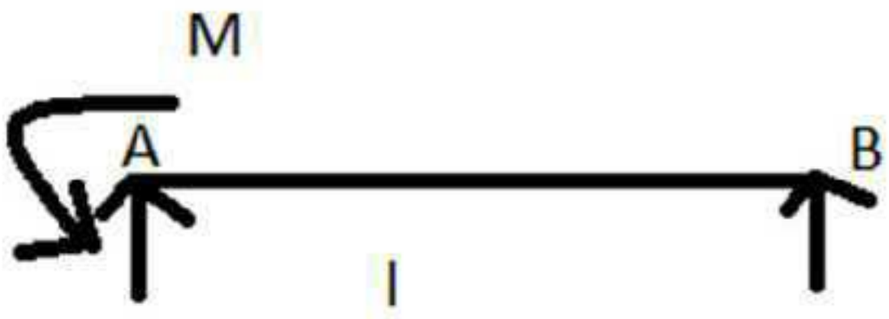
Q) Flexibility matrix of the beam shown

as above of length 4m--> $\begin{matrix} \frac{64}{3EI} & \frac{8}{EI} \\ \frac{8}{EI} & \frac{4}{EI} \end{matrix}$

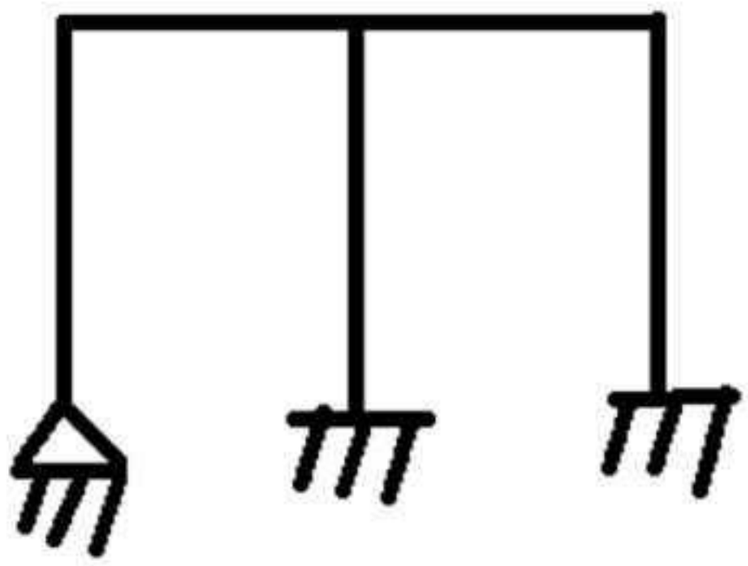
Q)In stiffness matrix method which are unknowns--> **displacements**

Q)Pin jointed plane truss /frame , the degree of freedom is--> **2j-r**

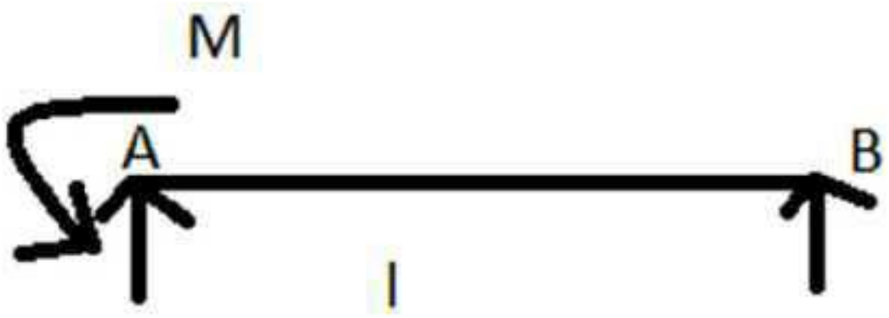
Q)The element flexibility matrix for a truss member is--> $\frac{L}{AE}$
Q)Stiffness matrix method in structural analysis is known as--> **displacement method**
Q)The flexibility method in structural analysis starts with--> **equilibrium of forces**
Q)The carryover factor in a prismatic member whose far end is hinged--> **1/2**
Q)For the three dimensional space truss ,the degree of indeterminacy is--> **(m+r)-3j**
Q)Which is not required to be satisfy to analyze the structure--> **displacement condition**
Q)Flexible matrix developed for the structure--> **stable and determinate**
Q)Flexible matrix method is the generalization of--> **consistent deformation method**
Q)It is not the property of stiffness matrix--> **it is an unstable element therefore the determinant is not equal to zero**



Q) Flexural stiffness of a beam at end A for the member when lateral displacement is prevented as shown in the above figure is--> **3EI/l**
Q)Castiglianos theorem fall under the category of--> **force method**
Q)Number of unknowns to be determined in the stiffness method is equal to--> **kinematic indeterminacy**
Q)The equilibrium condition used in the stiffness matrix method is--> **the external loads and internal member forces must be in equilibrium at the nodal points**
Q)Which of the following does not fall under the category of displacement method--> **method of consistent deformation**
Q)In stiffness matrix method ,the unknown internal member forces are calculated by using--> **slope deflection equations**
Q)A beam has an open configuration, the internal indeterminacy is--> **0**

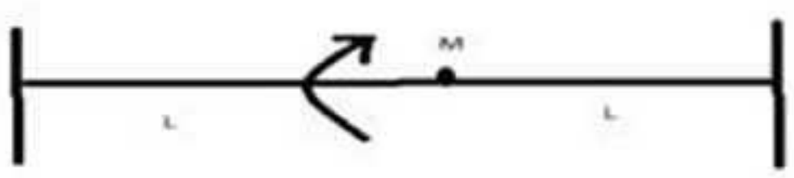


Q) Internal and external indeterminacy of the above structure--> **3,5**
Q)Maximum number of unknown forces that can be determined in concurrent force system under equilibrium is--> **3**
Q)Compatibility conditions are essentially required to solve--> **redundant frame**



Q) Flexural stiffness of a beam at end A for the member when lateral displacement is prevented as shown in the above figure is**--> 3EI/l**

Q)Fixed end movement $M_{Fab}$for given beam



is **--> M/4**

Q)Number of unknowns to be determined in the stiffness method is equal to**--> kinematic indeterminacy**

Q)The total number of reaction components is 6.Then the static indeterminacy is**--> 3**

Q)Which of the following does not fall under the category of displacement method**--> method of consistent deformation**

Q)If an end of a member is fixed, the rotation at the end being zero then the rotation moment is**--> 0**

Q)For unstable structures stiffness coefficients in leading diagonal matrix can be**--> Negative**

Q)If a moment M is applied to hinged end of prismatic propped cantilever ,the moment at the fixed end will be**--> M/2**

Q)Moment required to rotate near end of prismatic beam through unit angle, with translation, the far end is fixed, will be**--> EI/L**

Q)Which of the following is not true for analyze the Hardy cross method of moment distribution**--> Flexible frames**

Q)A uniform beam of length 2L and flexural rigidity EI is fixed at both ends. what is the moment required for unit rotation at the center of span**--> 8EI/L**

Q)What is the number of independent degrees of freedom of the two span continuous beam of uniform section fixed at one end and roller at another two supports**--> 4**

Q)The ratio of the stiffness of a beam with both end hinged support to beam at a joints with one side hinged support and other side fixed is (assuming both beams have same I and L)**--> 3/4**