Program: BE **Civil** Engineering

Curriculum Scheme: Revised **2012**

Examination: Third Year Semester **V**

Course Code: **CEC501** and Course Name: **SA II**

Time: 1hour Max. Marks: 50

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Note to the students:- All the Questions are compulsory and carry equal marks .

Q1.	How many degrees of freedom are counted for a roller support while calculating Degree of kinematic indeterminacy
Option A:	0
Option B:	1
Option C:	2
Option D:	3
Q2.	For a two-hinged arch, if one of the supports settles down vertically, then the horizontal thrust
Option A:	is increased
Option B:	is decreased
Option C:	Remains unchanged
Option D:	Becomes zero
Q3.	Degree of kinematic indeterminacy of a pin-jointed plane frame is given by
Option A:	2j – r
Option B:	j - 2r
Option C:	3j – r
Option D:	2j + r
Q4.	Which of the following method of structural analysis is a force method
Option A:	Slope-Deflection method
Option B:	Moment distribution method
Option C:	Clapeyrons theorem method
Option D:	Stiffness method
Q5.	If temperature changes occurs then the deflection of each member in truss, where α=Coefficient of thermal expansion, t_c= rise in temp; N= Force in member & L= length of member is given by
Option A:	$\Delta = \alpha\sum(t_c N L)$
Option B:	$\Delta = \alpha\sum(t_c N L)^2$
Option C:	$\Delta = \alpha^2\sum(t_c N L)$
Option D:	$\Delta = \alpha\sum(t_c N L)/2$

Q6.	P1 and P2 are external load, Δ1 and Δ2 are displacement caused when force is increased from P1 to P2, what will be the external work performed during application of load?
Option A:	1⁄2 (p1 Δ1 + p2 Δ2)
Option B:	1⁄2 (p2 Δ1 + p1 Δ2)
Option C:	p1 Δ1 + p2 Δ2
Option D:	p2 Δ1 + p1 Δ2
Q7.	How is a truss, which undergoes rigid body translation for arbitrary load classified as
Option A:	Determinate structure
Option B:	Geometrically unstable structure
Option C:	Statically unstable structure
Option D:	Structurally unstable structure
Q8.	In flexibility method, If L is the length of beam, and then what are the upper and lower limits of the above integration?
Option A:	–L, L
Option B:	–L, 0
Option C:	0, L
Option D:	½ L, L
Q9.	In flexibility method, the unknown quantities are _____, in stiffness method the unknown quantities are _____ respectively.
Option A:	Displacement, Force
Option B:	Force, Displacement
Option C:	Angle, Moment
Option D:	Moment, Angle
Q10.	The deformation of a spring produced by a unit load is called
Option A:	Stiffness
Option B:	Flexibility
Option C:	Influence coefficient
Option D:	Unit strain
Q11.	The lack of fit if it is induced, all the members in the redundant frame will be in
Option A:	Stress
Option B:	Tension
Option C:	Compression
Option D:	zero force state
Q12.	The flexibility coefficient represents
Option A:	displacement caused by a unit positive redundant action
Option B:	displacement caused by any load
Option C:	redundancy caused by the external reaction
Option D:	any load in the member

Q13.	The order of matrix is defined in the flexibility is based on
Option A:	Number of Redundant present in the beam externally and available equilibrium equation
Option B:	Number of Redundant present in the beam internally
Option C:	Number of unknown reaction
Option D:	Equilibrium equation
Q14.	The ratio of the stiffness of a beam at the near end when the far end is hinged to the stiffness of the beam at the near end when the far end is fixed is
Option A:	½
Option B:	1
Option C:	¼
Option D:	¾
Q15.	Moment distribution method is best suited for
Option A:	Indeterminate pin jointed truss
Option B:	Rigid frames
Option C:	Space Frame
Option D:	Composite structure
Q16.	In moment distribution method, the sum of distribution factors of all the members meeting at any joint is always
Option A:	Zero
Option B:	Less than 1
Option C:	1
Option D:	Greater than 1
Q17.	The ratio of stiffness factor for the member to the total stiffness of all the member at the joint is called as…….
Option A:	Stiffness factor
Option B:	Shear factor
Option C:	Carry over factor
Option D:	Distribution factor
Q18.	If the free and of a cantilever of span L and flexural rigidly EI, undergoes a unit displacement (without rotation), what is the bending moment induced at fixed end?
Option A:	$3EI/L^2$
Option B:	$4EI/L^2$
Option C:	$5EI/L^2$
Option D:	$6EI/L^2$
Q19.	A rigid frame ABCD has AB member as overhang, with end A being free. Support C and D are fixed. DB is vertical member and BC is horizontal member. DB=BC=5m.If the moment equation are given by. $M_{DB}=0.4EI\Theta B$, $M_{BD}=0.8EI\Theta B$

	M_{BA}=54 , M_{Bc}=-135+1.6EIΘB , M_{Bc}=135+1.6EIΘB, then rotation at B is given by
Option A:	-112.5/EI
Option B:	33.75/EI
Option C:	0
Option D:	10/EI
Q20.	If the displacement at the co-ordinate " i" due to unit force at co-ordinate j is δ_{ij} then according to flexibility method
Option A:	$\delta_{ij} = \delta_{ij}$
Option B:	$\delta_{ij} \geq \delta_{ij}$
Option C:	$\delta_{ij} \leq \delta_{ij}$
Option D:	$\delta_{ij} \neq \delta_{ij}$
Q21.	The shape factor does not depend on ____
Option A:	Material Properties
Option B:	Cross-sectional shape
Option C:	Moment of resistance
Option D:	Section modulus
Q22.	The plastic modulus of a section is 4.8×10^{-4} m^3. The shape factor is 1.2. The plastic moment capacity of the section is 120kN-m. The yield stress of the material is
Option A:	100 Mpa
Option B:	250 Mpa
Option C:	240 Mpa
Option D:	300 Mpa
Q23.	A cantilever beam of length l, width b and depth d is loaded with a concentrated vertical load at the tip. If yielding starts at a load P, the collapse load shall be
Option A:	2.0 P
Option B:	1.5 P
Option C:	P
Option D:	1.2 P
Q24.	In a plastic analysis of structures, the segment between any two successive plastic hinges is assumed to deform as
Option A:	A plastic material
Option B:	A rigid material
Option C:	An elastic material
Option D:	An inelastic material
Q25.	What is plastic hinge
Option A:	zone of bending due to flexure in a structural member

Option B:	zone of yielding due to flexure in a structural member
Option C:	zone of non-yielding due to flexure in a structural member
Option D:	zone of yielding due to twisting in a structural member