Program: BE **Civil** Engineering

Curriculum Scheme: Revised **2016**

Examination: Third Year Semester **V**

Course Code: **CEC501** and Course Name: **Structural Analysis II**

Time: 1 hour Max. Marks: 50

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

Q1.	For a given truss: Member = 10, Reaction= 4 and Joints= 6, the truss is
Option A:	Statically determinate
Option B:	Statically indeterminate
Option C:	Stable
Option D:	Unstable
Q2.	In two hinged arches, how many unknown forces exist?
Option A:	One unknown
Option B:	Two unknowns
Option C:	Three unknowns
Option D:	Four unknowns
Q3.	The degree of static indeterminacy of the frame with a single bay double storey with both ends fixed is
Option A:	4
Option B:	5
Option C:	6
Option D:	7
Q4.	Internal deformation caused by real loads will be in a linear elastic member, when P is normal force, L is length of member, A is cross-sectional area of member, E is modulus of elasticity
Option A:	1⁄4 PL/AE
Option B:	1⁄3 PL/AE
Option C:	1⁄2 PL/AE
Option D:	PL/AE
Q5.	A propped cantilever of span L is fixed at end A and simply supported at end B. It is subjected to udl of intensity w per unit length. Then the reactions at A and B are
Option A:	RA= (5/8)WL, RB= (3/8)WL
Option B:	RA= WL/2, RB= WL/2
Option C:	RA= (3/8)WL, RB= (5/8)WL
Option D:	RA= WL/4, RB= (3/4)WL

Q6.	The Compatibility equation form for Matrix method of flexibility is Where [DI] = Matrix of displacement in the structure due to redundant actually [DR] = Matrix of displacement in released structure due to load corresponding to unit action of load [F] = Flexibility coefficient matrix [R] = Unknown support reaction matrix
Option A:	$[D_I] = [D_R] + [F]\,[R]$
Option B:	$[D_I] = [D_R] - [F]\,[R]$
Option C:	$[D_R] = [D_I] - [F]\,[R]$
Option D:	$[D_R] = [D_I] + [F]\,[R]$
Q7.	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
Q8.	The principle of superposition states that
Option A:	Total BMD = Free BMD+ Fixed BMD
Option B:	Total BMD= Free BMD+ Fixed Shear
Option C:	Total BMD= Free BMD + Free Shear
Option D:	Total BMD= Free BMD+ Fixed Deflection
Q9.	The Flexibility in the structure can be defined as
Option A:	Displacement or rotation produced by unit force or moment
Option B:	Rotation produced by non-unit force
Option C:	Slope produced by non-unit force
Option D:	Unit displacement produced by non-unit force
Q10.	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 reactions
Option D:	Equilibrium equation
Q11.	What is the relation in flexibility and stiffness matrix
Option A:	they are square matrix
Option B:	the diagonal elements are nonzero and having positive values
Option C:	element ij=element ji
Option D:	they are inverse of each other
Q12.	The effect of moment applied at one joint is calculated on the other opposite joint by multiplying the moment applied by a certain factor called as……
Option A:	Stiffness factor
Option B:	Shear factor

Option C:	Carry over factor
Option D:	Distribution factor
Q13.	How many slope deflection equations are possible if there are 4 supports
Option A:	0
Option B:	6
Option C:	4
Option D:	3
Q14.	The ratio of the stiffness of a beam at the near end when the far end is fixed to stiffness of the beam at the near end when the far end is hinged is
Option A:	1.33
Option B:	0.33
Option C:	0.5
Option D:	1
Q15.	Moment required to rotate near end of prismatic beam through unit angle, the far end being fixed, will be
Option A:	EI/L
Option B:	2EI/L
Option C:	3EI/L
Option D:	4EI/L
Q16.	In moment distribution method, the sum of distribution factor at the Fixed end is
Option A:	Infinity
Option B:	1
Option C:	0.5
Option D:	None of the option
Q17.	The carryover factor in a prismatic member whose far end is Hinge is
Option A:	0
Option B:	Half
Option C:	0.75
Option D:	0.25
Q18.	A propped cantilever beam of span L is loaded with u.d.l of intensity w/unit length, all through the span. Bending Moment at the fixed end is
Option A:	WL^2 /8
Option B:	WL^2 /4
Option C:	WL^2 /10
Option D:	WL^2 / 12
Q19.	A two-span continuous beam having equal spans each of length L is subjected to a uniformly distributed load w per unit length. End supports are Simply Supported. The beam has constant flexural rigidity. The bending moment at the middle support is

Option A:	WL^2 /4
Option B:	WL^2 /8
Option C:	WL^2 /10
Option D:	WL^2 / 12
Q20.	The shape factor for a solid Diamond section with equal side as "a" is
Option A:	2
Option B:	1.5
Option C:	2.5
Option D:	3
Q21.	The moment which makes all the fibres at the section to yield is known as
Option A:	Flexural rigidity
Option B:	Moment of resistance
Option C:	Plastic moment capacity
Option D:	Yield moment
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 120 kN-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.	For a given structure subjected to a set of loads W, the value of W found to any assumed mechanism must be either greater or equal to the collapse load W_C called as
Option A:	Static theorem
Option B:	Kinematic theorem
Option C:	Uniqueness theorem
Option D:	Bending theorem
Q24.	Which of the method is the Approximate method of Analyzing a Rigid Frame
Option A:	Flexibility Method
Option B:	Substitute Frame method
Option C:	Direct Stiffness Method
Option D:	Slope Deflection Method
Q25.	Which of the following method of Analyzing building frame is used for Gravity Load
Option A:	Portal Method
Option B:	Cantilever Method
Option C:	Substitute Frame method
Option D:	Moment area Method