Program: Civil Engineering

Curriculum Scheme: Revised 2012

Examination: Third Year Semester :VI

Course Code CE C606 and Course Name: Theory of Reinforced and Prestressed concrete

Time: 1 hour   Max. Marks: 50

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

Q1.	What is the permissible tensile stress (σ_{st}) in steel reinforcement of Mild steel bar of 16 mm diameter
Option A:	140 MPa
Option B:	230 MPa
Option C:	130 MPa
Option D:	190 MPa
Q2.	Modular ratio of M25 concrete is equal to
Option A:	13.33
Option B:	10.98
Option C:	18.66
Option D:	17.94
Q3.	As per WSM, the Stress-Strain Relationship of steel and concrete under working load is assumed to be
Option A:	Linear
Option B:	Parabolic
Option C:	Partly linear and partly elliptical
Option D:	Cubic parabola
Q4.	Determine the type of RCC beam section 300mm*560mm effective provided with 3 bars of 20mm diameter in Tension zone. Use M20 and Fe415 grade of concrete and steel respectively. Adopt WSM Design
Option A:	Over-Reinforced Section

Option B:	Balanced Section
Option C:	Under-Reinforced Section
Option D:	Doubly Reinforced Section
Q5.	The frictional and anchorage slip losses are observed in _____
Option A:	Post tensioned members
Option B:	Pre tensioned members
Option C:	Ruptured members
Option D:	Axial member
Q6.	An isolated T beam has an effective span of 4800 mm and flange width of 800 mm. the flange thickness is 130 mm and the rib is 300 mm wide. The effective flange width is
Option A:	1000mm
Option B:	780 mm
Option C:	350 mm
Option D:	450 mm
Q7.	When the prestressing cable is passing through upper kern point
Option A:	the stress at the lower fibre of the beam is zero.
Option B:	the stress at the lower kern point is zero.
Option C:	the stress at the centroidal axis is zero
Option D:	the stress at the top fibre of the beam is zero.
Q8.	Select the correct depth of beam for which Side face reinforcement is required
Option A:	400mm
Option B:	500mm
Option C:	200mm
Option D:	1000 mm
Q9.	Maximum nominal shear stress with shear reinforcement for M 25 concrete in MPa is limited to

Option A:	1.9
Option B:	1.5
Option C:	2.3
Option D:	2.5
Q10.	What is the maximum spacing of stirrups for a beam of effective depth 300mm.
Option A:	200 mm
Option B:	225 mm
Option C:	100 mm
Option D:	150 mm
Q11.	A beam of size 300 mm*550 mm is subjected to a shear force of 50kN. The nominal shear stress is
Option A:	0.50
Option B:	0.20
Option C:	0.40
Option D:	0.30
Q12.	Choose the correct path for Load transfer in a building
Option A:	Beam-slab-column-footing
Option B:	Slab-footing-beam-column
Option C:	Beam-slab-footing-column
Option D:	Slab-beam-column-footing
Q13.	One Fe 415 bar of diameter 22 mm is bent up to resist part of shear. The shear resistance of bent up bar is
Option A:	145.65 kN
Option B:	23.57 kN

Option C:	61.79kN
Option D:	194.22 kN
Q14.	Torsion reinforcement is provided for a two way slab…..
Option A:	At corner
Option B:	At center of slab
Option C:	Along shorter span
Option D:	Along longer span
Q15.	If in a post tensioned beam the age of concrete at prestress transfer is 7 days. If $E=210$ kN/mm^2 , the loss in prestress due to residual shrinkage strain is
Option A:	44 N/mm^2
Option B:	8 N/mm^2
Option C:	23 N/mm^2
Option D:	32 N/mm^2
Q16.	If for Columns with helical reinforcement, the requirement for ratio of the volume of helical reinforcement to the volume of the core is satisfied then the Permissible Load shall be _____
Option A:	2 times the permissible load for similar member with lateral ties
Option B:	3 times the permissible load for similar member with lateral ties
Option C:	2.5 times the permissible load for similar member with lateral ties
Option D:	1.05 times the permissible load for similar member with lateral ties
Q17.	Minimum number of bars in a circular column is
Option A:	4
Option B:	5
Option C:	6

Option D:	8
Q18.	The maximum spacing of lateral tie (transverse link) for a column of size 300 mm * 400 mm and main bar of 16 mm diameter is
Option A:	256
Option B:	300
Option C:	400
Option D:	200
Q19.	Minimum diameter of main bar in a column is
Option A:	12 mm
Option B:	10 mm
Option C:	16 mm
Option D:	6 mm
Q20.	Critical section for calculating one way shear in column footing is at
Option A:	Face of column
Option B:	At a distance d from face of column
Option C:	At a distance d/2 from face of column
Option D:	At d/3 from face of column
Q21.	In a simply supported slab, the pitch of main reinforcement should not be more than _____ the effective depth of slab.
Option A:	Double
Option B:	Three times
Option C:	Five times
Option D:	Six times
Q22.	In a cantilever slab the tension reinforcement is provided at
Option A:	Top face
Option B:	Bottom face

Option C:	At neutral axis level
Option D:	End vertical face
Q23.	The frictional and anchorage slip losses are observed in _____
Option A:	Post tensioned members
Option B:	Pre tensioned members
Option C:	Ruptured members
Option D:	Axial member
Q24.	A rectangular prestressed concrete beam 400mm*600mm is subjected to BM of 72kNm. If the axial prestreesing force is 960 kN, the extreme fibre stresses in N/mm^{2}are
Option A:	7 N/mm^2 and 1 N/mm^2
Option B:	4 N/mm^2 and 5 N/mm^2
Option C:	4 N/mm^2 and 9 N/mm^2
Option D:	5 N/mm^2 and 1 N/mm^2
Q25.	Chose the correct pair of materials for prestressed concrete and tendons for a prestressed beam.
Option A:	M20 concrete and Fe415 steel
Option B:	M40 concrete and Fe1500 steel
Option C:	M15 concrete and Fe250 steel
Option D:	M20 concrete and Fe250 steel