Program: B.E. Civil Engineering

Curriculum Scheme: Revised 2012

Examination: Fourth Year Semester :VIII

Course Code CE C801 and Course Name: Design and Drawing of Reinforced Concrete Structures

Time: 1 hour

Max. Marks: 50

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

Q1.	The safe bearing capacity of soil is 200 kN/m^2 , unit weight of soil is 19 kN/m^3 and angle of repose is 25^0 degrees. Minimum depth of foundation as per Rankine's formula is
Option A:	1.25 m
Option B:	0.50 m
Option C:	1.73 m
Option D:	1.00 m
Q2.	The thickness of slab is 300mm. It is provided with Fe415 steel. The area of distribution steel will be equal to mm^2 .
Option A:	360
Option B:	300
Option C:	200
Option D:	160
Q3.	A 12 mm at bar in tension is be curtailed in a beam of effective depth 150 mm.
	Choose correct distance for which it is to be extended beyond a point at which it
	is no longer required to resist flexure.
Option A:	150 mm
Option B:	175 mm
Option C:	144 mm
Option D:	250 mm

Q4.	A column 200*400 is provided 16 mm bars as main steel. If 6 mm bar is used as lateral tie. The spacing of lateral tie is mm
Option A:	300
Option B:	192
Option C:	384
Option D:	200
Q5.	Which of following foundation is used, if there is a possibility of differential settlement in case individual footing.
Option A:	Strap footing
Option B:	Mat footing
Option C:	Rectangular combined footing
Option D:	Combined footing
Q6.	Machine foundation is subjected to:
Option A:	Static loads only
Option B:	Wind loads only
Option C:	Static and dynamic loads
Option D:	Dynamic loads only
Q7.	The number of steps in each flight and rise (in mm) of the stair should not more than for comfort of users.
Option A:	10;250
Option B:	11;300
Option C:	12;175
Option D:	12;450
Q8.	In a staircase, tread of a step is 250 mm and riser of a step is 150 mm and unit weight of concrete is 25 KN/ M3. The weight of each step without waist will be equal to
Option A:	0.569 KN/ m width of staircase
Option B:	0.469 KN/ m width of staircase
Option C:	0.469 KN/ m width of staircase

Option D:	0.555 KN/ m width of staircase
Q9.	If the beam cross section is $300 \text{ mm} * 450 \text{ mm}$ and design shear strength is 0.60 N/mm ² , the shear strength of concrete without shear reinforcement iskN.
Option A:	81
Option B:	23
Option C:	74
Option D:	57
Q10.	Transverse links are provided in column to
Option A:	Provide restraint against outward buckling of longitudinal bars
Option B:	Increase amount of steel in column
Option C:	decrease amount of steel in column
Option D:	to increase cost of column
Q11.	A simply supported beam is subjected to factored bending moment of 275 kNm, if width is two third of effective depth ($b = 2d/3$) then width for balanced section ismm.(Materials M 20 and Fe 415)
Option A:	354
Option B:	213
Option C:	617
Option D:	281
Q12.	The area of steel required for short RCC column 400mm*425 mm subject to axial load of 1195 kN is mm ² . (M 20 concrete and Fe 415 steel are used)
Option A:	1300
Option B:	1400
Option C:	1500
Option D:	1600
Q13.	The heel slab of a retaining wall is subjected to factored bending moment of 229
	kNm. If effective depth of slab is 490 mm, the area of steel required is mm ² .

	(use M20 concrete and Fe 415 steel)
Option A:	1521
Option B:	1834
Option C:	1372
Option D:	2738
Q14.	Height of one flight is 1.8 m. If rise provided is 150mm, number of treads is equal to
Option A:	12
Option B:	11
Option C:	18
Option D:	8
Q15.	Total pressure on the vertical face of a retaining wall of height h acts parallel to free surface and from the base at a distance of
Option A:	h/4
Option B:	2h/3
Option C:	h/3
Option D:	h/2
Q16.	In two war shear check of foundations, the value of K_s is limited to
Option A:	1.5
Option B:	1
Option C:	7.5
Option D:	2.1
Q17.	The shear key is provided to
Option A:	Avoid sliding failure of the wall
Option B:	Improve appearance
Option C:	Increase passive resistance

Option D:	To resist overturning
Q18.	Weight of a retaining wall is 292kN, coefficient of friction is 0.65, horizontal soil pressure force per metre run of wall is 109 kN. The factor of safety against sliding is
Option A:	1.23
Option B:	1.97
Option C:	1.74
Option D:	2.21
Q19.	For a water tank of size 4m*9m, the longer wall is designed as
Option A:	Vertical cantilevers
Option B:	Walls fixed at both ends
Option C:	Horizontal cantilevers
Option D:	Walls simply supported at ends.
Q20.	What will be the hoop force if unit weight of water= $Y=9.81$ KN/m ³ , height of tank=H= 5m, Diameter of circular tank= D= 10m.
Option A:	123.97 Kn
Option B:	382.54 kN
Option C:	242.25 kN
Option D:	84.21 kN
Q21.	Wall of a circular water tank with flexible base is 265 mm thick. The vertical distribution steel required is mm ² .
Option A:	300
Option B:	418
Option C:	795
Option D:	129
Q22.	A rectangular water tank is resting on ground. If pull in wall at a level is 38160

	N, the area of steel required to resist pull is mm ² . (Use Fe415 steel)
Option A:	392
Option B:	255
Option C:	183
Option D:	256
023	For a strap footing shear is calculated at a section, which is at
Q23.	Tor a strap rooting sitear is calculated at a section which is at
Option A:	Inner edges of two footings.
Option B:	Outer edges of two footings
Option C:	At center of each footing
Option D:	At inner edge of smaller footing
Q24.	A beam of width 300 mm is provided with mild steel nominal shear reinforcement. The spacing for 6 mm two legged stirrups is
Option A:	173 mm
Option B:	101 mm
Option C:	145 mm
Option D:	121 mm
Q25.	In design of retaining wall
Option A:	Eccentricity must be greater than b/6 where b is width of base
Option B:	Maximum pressure at base slab should be greater than safe bearing capacity of soil
Option C:	Maximum pressure at base slab should be less than safe bearing capacity of soil
Option D:	Resultant of weight of retaining wall and earth pressure should pass through outer edge of base.