Sanjay Ghodawat University, Kolhapur

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2020-21

EXM/P/09/00

Year and Program: T.Y.B.Tech	School of Technology	Department: Civil
Course Code: CET324R1	Course Title: Advance Design of RCC Structures	Semester :VI
Day and Date:	End Semester Examination	Time : 2 Hrs. Max Marks : 50

Instructions: 1) All Questions are compulsory.
2) Assume suitable data wherever necessary.

Q.1		Solve the following (any Two)	Marks	Bloom's Level	CO
	a)	Design a 3 span continuous beam of span 5 m each to carry live load of 30 kN/m and a dead load of 20 kN/m. Use M20 concrete and Fe415 steel.	8	L_3	CO1
	b)	Design a circular water of capacity 1,50,000 liters of total height 3.2m, which will be resting on ground, if joint between wall and tank is flexible. Use M25 concrete and Fe 415 steel.	8	L_3	CO1
	c)	Design an open rectangular tank of size 3m x 8m x 3m deep resting on a firm ground. Use M25 grade concrete mix and Fe 415 steel. Approximate method may be used for the analysis.	8	L_3	CO2
Q.2		**Solve the following (any Two)**			
	a)	Design the interior panel of a flat slab floor of size 5m x 5m with suitable drop to support a live load 4 kN/m^2. The floor is supported by column of size 450mm x 450mm. Use M20 concrete and Fe415 steel.	8	L_3	CO2
	b)	Design an interior panel of a flat slab with panel size 6m x 6m supported by columns of size 500m x 500m. Provide suitable drop. Take live load as 4 kN/m^2. Use M20 concrete and Fe 415 steel.	8	L_3	CO3
	c)	A R.C. grid floor is to be designed to cover a floor area of 12m x 18m. The spacing of the ribs in mutually perpendicular direction is 1.5m c/c. Live load on floor is 3 kN/m^2. Adopt M20 grade concrete and Fe 415 grade HYSD bars. Assume ends are simply supported. Analyze the grid floor by IS 456:2000 method.	8	L_3	CO3
Q.3		**Solve the following (any Two)**			
	a)	Design a stem of a cantilever retaining wall to retain an earth embankment with a horizontal top 3.5m above ground level. Density	9	L_4	CO4

		of earth = 18 kN/m^3. Angle of internal friction $\phi = 30^0$. SBC of soil is 200 kN/m^3. Take coefficient of friction between soil and concrete = 0.5. Adopt M20 grade concrete and Fe 415 steel.			
	b)	Design a rectangular slab of slab of size 4m X 6m which is simply supported along the edges and has to carry a service live load of 4 kN/m^2. Assume coefficient of orthotropy μ = 0.75. Use M20 concrete and Fe415 steel.	9	L_4	CO4
	c)	Design a simply supported square slab of a side 5m to carry a service load of 3 kN/m^2. Use M20 grade concrete and Fe415 grade steel.	9	L_4	CO4

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