Sanjay Ghodawat University, Kolhapur

2020-21

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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: 10.06.2021,Thursday	End Semester Examination	Time:2 Hrs. Max Marks:50

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

		Marks	Bloom's Level	CO
Q.1	**Solve the following (any Two)**			
a)	Design a continuous beam of spans 6 m to carry a dead load 15 kN/m and a live load of 18 kN/m. Assume beam is continuous over 3 spans. Use M20 concrete and Fe415 steel.	8	L_3	CO1
b)	Design a circular water tank with flexible base resting on the ground to store 50,000 litres of water. The depth of tank may be kept 4m. Use M25 concrete and Fe 415 steel.	8	L_3	CO1
c)	Design rectangular water tank of size 6m x 4m x 3m deep resting on a firm ground. Use M25 concrete mix and Fe 415 steel.	8	L_3	CO2
Q.2	**Solve the following (any Two)**			
a)	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	CO2
b)	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	CO3
c)	A reinforced concrete grid floor of size 9m x 13.5m is required for function hall. The floor is subjected to a live load of 4 kN/m^2. Assume rib spacing of 1.5m in both directions. Design the grid floor adopting M20 grade concrete and Fe415 steel.	8	L_3	CO3
Q.3	**Solve the following (any Two)**			
a)	Design the stem of a counterfort retaining wall if the height of wall above ground level = 5m, SBC of soil = 180 kN/m^2, Angle of friction $\phi = 30^0$,	9	L_4	CO4

Density of soil = 18 kN/m^3,
Spacing of counterforts = 3 m c/c.
Adopt M20 concrete and Fe415 steel.

b)	Derive the expression relating yield line moment and ultimate load intensity w_u in the isotropically reinforced square slab, simply supported all around.	9	L_4	CO4
c)	A simply supported circular plate of radius 3 m is reinforced with 10 mm bars spaced 150 mm c/c. Average effective depth is 120 mm and overall depth is 145 mm. Determine its load carrying capacity if grade of concrete is M20 and that of steel is Fe415.	9	L_4	CO4

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