



GOVERNMENT COLLEGE OF ENGINEERING, JALGAON

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Name of Examination : **Winter 2020** - (Preview)

Course Code & Course Name : **CE302U - Design of RCC Structures**

Generated At : **18-04-2022 16:19:15**

Maximum Marks : **60**

Duration : **3 Hrs**

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Answer Key Submission Type: No marking scheme and solution

Instructions:

1. All questions are compulsory. Refer IS 456-2000 is permitted
2. Illustrate your answer with suitable figures/sketches wherever necessary.
3. Assume suitable additional data; if required.
4. Use of logarithmic table, drawing instruments and non programmable calculators is allowed.
5. Figures to the right indicate full marks.

- 1) Design and draw a dog legged staircase for an office building, the room size measuring 3.0 m x 5.50 m, clear floor to floor height is 3.10 m. The live load may be taken as 3.0 kN/Sq.M. Use M20 and F500 grades of concrete and steel respectively. [15]

OR

- 1) a) Explain balanced, under reinforced and over reinforced sections as applied to limit state design method with neat sketches [05]
 b) Design and draw a column of size 230 mm x 300 mm and having 3.10 m unsupported length. The column is subjected to a load of 550 kN and is effectively held in position but not restrained against rotation. Use M20 and F415 grades of concrete and steel respectively [10]
- 2) A RCC beam is simply supported on 300 mm thick wall supports. The clear span of the beam is 3.50 m. The live load for the beam is 3.50 kN /m. Design the RCC beam and draw the detailing. [15]
- 3) A simply supported reinforced concrete slab measuring 4.50 m x 5.50 m inside has to carry a live load of 3.50 kN/Sq.M. The slab is simply supported on 230 mm thick walls. Use M20 and F415 grades of concrete and steel respectively. Design and draw the slab. [15]
- 4) Design and draw a rectangular isolated footing of uniform thickness for a RCC column, bearing a vertical load of 1000 kN and size 350mm x 350 mm. Consider SBC of soil as 200 kN/Sq.M. [15]

Next question!

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