

Final Assignment/Quiz
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Note: Attempt all questions. Answer of the given questions must be uploaded within 06 hours after uploading of question paper. No answer sheet will be considered after given time period.

Q No 1: CLO-2 [15]

A reinforced concrete slab is built integrally with its supports and consists of three equal spans, each with clear span of 15 ft. The factored live load is 160 psf and service floor finish load is 20 psf. Design the slab using $f'_c = 4000$ psi and $f_y = 40$ ksi. Draw sketch of your final design.

Q No 2: CLO-2 [15]

A simply supported rectangular beam 16 inch. wide having an effective depth of 22 inches carries a total factored load of 9.4 kips/ft. (excluding self-weight of beam) on a 20-ft. clear span. It is reinforced with 7.62 in² of tensile steel which continues uninterrupted into the supports. If $f'_c = 4000$ psi and $f_y = 60000$ psi. Using #3 vertical U-stirrups. Design the web reinforcement. Draw a sketch of your final design.

Q No 3: CLO-2 [05]

Calculate the axial ultimate load carrying capacity of a 12 inch. square tied column reinforced with 4 #9. Ties are #3 spaced @ 12 inches. Use $f'_c = 4000$ psi and $f_y = 60$ ksi. Also, design necessary spirals.

Q No 4: CLO-2 [15]

Design a square single footing to support a 16 inches square tied concentrically loaded column. The column carries an un-factored axial D.L of 100 kips and an axial L.L of 120 kips. The base of footing is 5 ft. below final grade and the allowable soil pressure is 2.50 ksf. Use $f'_c = 3$ ksi, $f_y = 60$ ksi and $\gamma_{\text{soil}} = 120$ pcf. Draw a sketch of your final design.

“Good Luck”