Total No. of Questions : 8]

SEAT No. :

P3987

[Total No. of Pages : 2

[5155]-143
M.E. (Civil Structure)
ADVANCED DESIGN OF CONCRETE STRUCTURES
(2013 Pattern)

Time : 3 Hours] *[Maximum Marks : 50*

Instructions to the candidate:

1) ***Attempt any five questions from the following.***
2) ***Draw neat diagrams.***
3) ***Figures to the right indicates full marks.***
4) ***Assume suitable data if necessary.***
5) ***Use of cell phone is prohibited.***
6) ***Use of electronics pocket calculator, is 456 is allowed.***

Q1) a) Draw yield lines for the following. **[6]**

i) Right angled triangular slab, fixed at two sides making right angle, unsupported at third side.

ii) Rectangular slab with three edges fixed and one long edge unsupported.

b) Write short note with sketches on Characteristics of yield lines. **[4]**

Q2) A rectangular slab is simply supported at the ends. Design the slab to carry superimposed load of 5kN/m^2, if the slab is to be orthogonally reinforced. Use M20 and Fe 500. Use yield line theory. **[10]**

Q3) Design a grid slab for a floor of hall 14m×16m having square grid of 2m. Use M25 and Fe415. **[10]**

Q4) Design an interior panel of flat slab 5m×6m for a live load of 5kN/m^2 and FF 1kN/m^2. Use M20 and Fe 415. **[10]**

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Q5) Design a container for circular type ESR for 1 lakh liters with straight height 12m using M25, Fe 415 in earthquake zone III. SBC is 200kN/m^2. Design of staging is not required. **[10]**

Q6) Design a square bunker to store 110 tonnes of cement for the following. Density of 10 cement is 32kN/m^2. Angle of repose is 29º. use M25 Fe 415. Draw details of reinforcement. **[10]**

Q7) Design raft foundation for the following center to center distance of column in both directions is 2.4m, column size 300×300mm, working axial load on each column is 600kN. The depth of the strata is 1.8m. Use M20 and Fe 415. SBC 100kN/m^2. Draw reinforcement details. **[10]**

Q8) a) Write detailed note on design of formwork for flat slab. **[10]**

b) Write detailed note on Bar bell shear wall.

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