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Following Paper ID and Roll No. to be filled in your Answer Book.

PAPER ID : 0125 Roll No.

B. Arch. Examination 2019-20

(Odd Semester)

ARCHITECTURAL STRUCTURES - V

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

Note :– (i) Attempt total four questions. Question No. 1 is compulsory.

(ii) Use of IS : 456-2000 is permitted.

(iii) Non-programable calculator is allowed.

1. Attempt any four parts of the following : 5×4=20

(a) What is limit state method? Give brief description.

(b) Why working stress method is not in practice now a days? Give suitable example.

(c) What do you mean by characteristics compressive strength of concerete?

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(d) Compare one way and two way slab for their shape and design principles. Draw neat sketch of each.

(e) What do you mean by Prestressing? Explain briefly.

(f) Explain the term "loss of prestress". What are the various causes of it?

2. (a) Design water tank (RCC) is done using working stress method. Explain why? 5

(b) Design a simply supported singly reinforce beam supported on 750 mm thick wall spaced at a clear distance of 6m. The beam carries a bending moment of 100 kN-m. Design the beam using Fe-415 steel and M-20 concrete. 5

3. (a) What do you mean by effective length of the column? Explain how slanderness ratio affects load carrying capacity of the column? 5

(b) Design a reinforced short concrete column, 400 mm square, to carry an ultimate load of 1000 kN at an eccentricity of 160 mm. Use M-20 grade concrete and Fe-415 grade steel. Give that P/fck value is 0.105. 5

4. (a) What do you mean by Flat Slab? Explain its structural and architectural uses. 5

   (b) Compare solid slab with flat slab for working efficiency. Also explain provisions to resists punching shear is flat slab. 5

5. (a) Explain the process of pre and post tensioning. Compare the two for their situation use and relative advantages and limitations. 5

   (b) A simply supported prestressed concrete beam of rectangular section 400 × 600 mm loaded with UDL of 42.667 kN/m. span of the beam is 6m. Sketch the distribution of stresses at mid span and end sections if the prestressing force is 1920 kN and the tendor is eccentric with 200 mm above bottom fiber. 5

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