*V – 8 5 5 6 *

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

PAPER ID : 8556   Roll No.

B. Arch.

(SEM. VIII) EXAMINATION, 2006-07
ARCHITECTURAL STRUCTURE - VIII

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

Note :

(1) Attempt **all** *questions.*

(2) *In case of numerical problems assume suitable data wherever not provided.*

(3) *Use of IS-800-1984, Steel Table is permitted.*

(4) *Be precise in your answer.*

1. Attempt any **three** parts of the following :   **4×3=12**

   (a) Distinguish between Rankine's theory and Coulomb's theory.

   (b) Find efficiencies of a single riveted Lap joint for 8 mm. plates with 16 mm diameter rivets at a pitch of 50 mm c/c.

   (c) Write design steps of the lacing and battening for compression member.

   (d) Define the following :

   (i) Log Angle

   (ii) Tenhion splice

2. Attempt any **three** parts of the following; 4×3=12
Part d is compulsory.

    (a) What do you understand by economical spacing of roof truss?

    (b) Explain the effects of size of footing for the ultimate bearing capacity.

    (c) Explain the following :

        (i) Degree of saturation

        (ii) Water content

        (iii) Coarse grained soil

        (iv) Specific gravity

    (d) Determine the tensile strength of a roof trees diagonal 100 mm × 75 mm × 100 mm connected to the gusset plate by 5 mm fillet weld.

3. Attempt any **two** parts of the following : 8
Part A is **compulsory**.

    (a) Compute the intensities of active and passive earth pressure at depth of a 0 mtr in dry cohesionless sand with an angle of internal friction of 30° and unit weight of 10 kN/m^3. What will be the intensifier of active and passive earth pressure of the water table rises to the ground level? Take saturated unit weight of sand 22 kN/m^3.

    (b) Write design steps of laterally unsupported beam.

    (c) What is efficiency of pile group and define negative skin friction.

4. Attempt any **one** part of the following :   **14×1 = 14**

   (a)   A riveted plate circular is simply supported over an effective span in 16 mtr. It carries a u.d.l of 80 kN/m in addition to its self weight and two concentrated loads of 400 kN each at 4 mtr from the either support. Design the following :

       (i)   Economical depth

      (ii)   Design of web

     (iii)   Design of flanges.

   (b)   (i)   Write modes of failure of Flexural   **4+10**

             Members.

      (ii)   A simply supported beam has an objective span of 7 m and carries 9.u.d.l. of 50 kN/m

     (iii)   Taking f_y = 250 N/mm² and

             $E = 2 \times 10^5\, N/mm^2$. Design the beam if it is laterally supported.

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