AU – 2690

Fifth Semester B. Arch. Examination

BUILDING MATERIAL AND CONSTRUCTION – V

Paper – 5 AR 01

(USC – 10037)

P. Pages : 2

Time : Four Hours] [Max. Marks : 80

Note : (1) Question No. **Five** is compulsory.
(2) Diagrams and Chemical equations should be given wherever necessary.
(3) Use of slide rule, logarithmic tables, Steam tables, Mollier's Chart, Drawing instrument, Thermodynamic table for moist air, Psychrometric Charts and Refrigeration charts is permitted.
(4) Use of D.A. Lows "Pocket Book" For Mechinical Engineering is permitted.
(5) Discuss the reaction, mechanism wherever necessary.
(6) Use pen of Blue/Black ink/refill only for writing the answer book.

1. Sketch and explain briefly the verious types of footings you consider suitable for:—

   (1) Isolated R.C.C.column.

   (2) Combined footing for concrete column.

   (3) Foundation for black cotton soil.

OR

2. Why is surface exploration necessary ? State the different methods of exploration of the sub - soil conditions and describe one of the method in detail. 20

3. What type of foundation would you adopt under a heavy steel column over soft soil? Explain with reasons and make a neat sketch.

OR

4. Design car shade for institutional building by using structural steel members available in market. The width of shade is 4.5 m and height of shade is not less than 2.50 m. Assume length.
Draw the following :—

(1) Key plan of car shade.

(2) Sectional elevation showing structural members used in it.

(3) Foundation detail of gate. 20

5. Explain the following with the help of neat sketches (any Four) :—

(1) Eccentrically loaded footing.

(2) Various types of concrete.

(3) One way slab.

(4) Combined footing in concrete column.

(5) Sprade footing.

(6) Reinforcement for Lintel and Chajja and it's use. 20

6. Suggest the slab reinforcement with beams for the room having span 4.50 m x 6.00 m.

(1) Draw plan with column position at corners of room and slab reinforcement.

(2) Section relevation of slab and beam showing reinforecement.

(3) Beams details by assuming depth of beam.

OR

7. (a) Explain with sketches cost effective construction techniques.

(b) Explain the material to be useful to conserve energy. 20