B.Arch. Semester - V (CGS)

10037 - 5 AR 01 : Building Materials & Construction - V

P. Pages : 2 | AR - 2025

Time : Four Hours | Max. Marks : 80

Notes :
1. All question carry equal marks.
2. Question No. **one** is compulsory.
3. Due credit will be given to neatness and adequate dimensions.
4. Assume suitable data wherever necessary.
5. Retain the construction lines.
6. Illustrate your answer necessary with the help of near sketches.

1. Draw neat sketches to explain the following. **20**

i) Grillage foundation.

ii) Raft foundation (Both with beam & with out beam) also show the reinforcement of slab with beam?

iii) Isolated R. C. C. column.

iv) Combined footings.

2. Design a shade for petrol pump, the size of shade is 7.5m x 9.14m and it is supported on R. S. J (Stanchions) at 4.5 M height. Draw key plan, sectional elevation, Foundation details, necessary details also suggest the cladding material for the shade? **20**

OR

3. Design R. C. C. stair-case for an office Building leading from the ground to the first floor. Height of the floor is to be 3.30 m and the width of one flight is to be 1.20 m, state reasons for the size of the risers and treads adopted by you draw plan showing R. C. C. details, sectional elevation and details showing connection of flight with R. C. C. beam at bottom, landing & slab top **20**

4. An apartment building in the city consisting 2 No^{is} of bed rooms which are measuring internally 3500 x 3600 and 4500 x 3600 mm in size with a toilet Bloch 2400 x 3000 mm in size. All the rooms and T. B. are in liner position, you are asked to provide the R. C. C. slab. **20**

Furnish the detail of the R. C. C. slab as per your convenience and draw following.

i) Key plan and longitudinal Section of slab.

ii) Detail plan of the R. C. C. slab showing reinforcement details with bartending positions.

iii) Details of slab reinforcement with beams.

OR

5. What is flat plate slab? A part portion of the large hall having the grid of R. C. C. circular columns & of 600 mm & which are placed at 9000 mm c/c at both way. you are asked to give the following details. **20**

i) Key plan of the one panel showing the column's grid and show the reinforcement.

ii) Cross section through the column showing the capital and other required drops in suitable scale.

iii) any 2 necessary details in suitable scale.

6. Suggest cost effective construction techniques and materials which is to be use full to conserve energy in Vidarbha region ie. (Hot & dry climate). Explain with suitable sketches? **20**

OR

7. Explain the following with the help of neat sketches **any three.** **20**

1) Advantages of ready mix concrete.

2) light weight, high density concrete.

3) Eccentrically loaded footings.

4) Foundation in black cotton soil

5) R. C. C. chajja with reinforcement and it's purpose.

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