



Seat No. _____

HAB-161001010404

B. Arch. (Sem. IV) Examination

May - 2023

Structure-IV

Time : 2 Hours / Total Marks : 50

- Instructions :**
- (1) Attempt all questions.
 - (2) Make suitable assumption wherever necessary.
 - (3) Figures to the right indicate full marks.
 - (4) IS 456 is permitted.
 - (5) Use of Calculator is permitted.

1 Design structural elements sizing by approximate method for column and footing of a building at Rajkot having height 15 mt. and c/c beam span 6.0 metre. S.B.C. of foundation strata is 300 KN/Sq. mt. Reinforcement steel Fe500D and concrete M25. Draw neat sketches showing all designed dimensions of column and footing. **10**

2 Explain different types of footings in building structure with neat sketches. **10**

3 Draw neat sketch showing reinforcement detailing of R.C.C. Staircase. **10**

OR

3 Draw neat sketch showing reinforcement detailing of R.C.C. beam in R.C.C. framed structure. **10**

4 Calculate safe load carrying capacity of 300 mm × 600 mm rectangular column, with 8 bars 20 mm dia. Fe-550D and concrete M-30. **10**

OR

4 Design main steel for a simply supported beam of size 230 mm × 600 mm and c/c span 5.60 mt. with u.d.l. of 32 KN/mt. (DL+LL) acting over its entire span. The effective cover to main reinforcement is 35 mm, concrete grade M25 and TMT steel reinforcement FE 550D. Draw B. M. and S. F. diagrams also. **10**

5 Write brief note. (any two) **10**

- (a) Ingredients of concrete
- (b) Curing of Concrete
- (c) Dead load and live load.