

T. Y. B.ARCH. SEM – VI (2010 COURSE) : SUMMER - 2019
SUBJECT: THEORY OF STRUCTURES AND BUILDING MATERIALS-VI

Day: Saturday
Date: 11/05/2019

S-2019-3732

Time: 10.00 AM TO 01.00 PM
Max Marks: 100

N.B.:

- 1) Solve **ANY THREE** from Section-I and **ALL FOUR** from Section-II.
 - 2) Figures to the right indicate **FULL** marks.
 - 3) Answers to both the sections should be written in separate answer book.
 - 4) Assume suitable data of necessary.
 - 5) Draw illustrative sketches wherever necessary.
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SECTION-I

- Q.1** a) Write a short note on: (10)
i) Types of shallow foundation
ii) Ultimate load method
- b) Calculate area of steel required for a singly reinforced RCC beam 230 mm wide and 460 mm deep to resist ultimate moment of 62 kNm. Assume M20 grade concrete and fe415 grade steel. Effective cover 40mm (10)
- Q.2** a) Give general specifications of battening system for steel stanchions. (06)
- b) A built-up column is composed of two channel sections of ISMC 400 back to back placed at a distance of 256 mm. find the maximum load it can carry. The length of column is 6.5 m with both ends hinged. Design lacing system for the same. Draw neat sketch. (14)
- Q.3** a) Explain : Types of pile foundation (06)
- b) Draw typical reinforcement details of combined footing. (04)
- c) A rectangular combined footing is supporting two columns C1 and C2, having axial compressive load of 1000 kN and 1300 kN respectively. Columns are located at a centre to centre distance of 1.7 m. C1 is 400 mm x 400 mm while C2 is 500 mm x 500 mm. Soil bearing capacity is 200 kN/m². Find only plan area and draw the same. (10)
- Q.4** a) Design isolated RCC pad footing for a column 350 mm x 350 mm carrying axial compressive load of 750 kN. Soil bearing capacity is 250 kN/m². Use 16 mm diameter bars. Draw neat reinforcement sketch for the same. Carry out one way shear check. (16)
- b) Draw various sections of steel built up columns. (4)

SECTION-II

- Q.5** What is false ceiling? Explain insulation materials used for ceiling? (10)
- Q.6** What is single skin Partition? Explain Method of execution of single skin partition with sketches? (10)
- Q.7** Explain various sealants used for building industry? (10)
- Q.8** Explain various adhesives used for building industry? (10)