

--	--	--	--	--	--	--	--	--	--

Seventh Semester B.E. Degree Examination, Dec.09/Jan.10
Design of Masonry Structures

Time: 3 hrs.

Max. Marks:100

Note: 1. Answer any FIVE full questions, selecting at least TWO questions from each part.
2. Use of IS:1905-1987 code is permitted.



PART - A

- 1 a. Write in detail, various factors affecting the compressive strength of a masonry. (10 Marks)
b. Write in detail, various properties and requirements of a good mortar. (10 Marks)
- 2 a. Discuss the effects of bad workmanship on the masonry strength. (08 Marks)
b. Discuss the tensile strength and shear strength of masonry. (12 Marks)
- 3 a. Explain the increase in permissible compressive stresses allowed for eccentric vertical and lateral loads, under different conditions. (08 Marks)
b. Write a brief note on basic compressive stress. (04 Marks)
c. Discuss briefly:
i) Stress reduction factor ii) Area reduction factor. (08 Marks)
- 4 a. How is effective height of a wall obtained for various end support conditions? Explain with examples and sketches. (10 Marks)
b. Explain the term slenderness ratio and write the limiting values of slenderness ratios upto two and above two storeyed buildings. (10 Marks)

PART - B

- 5 a. Discuss in detail, 'free standing walls'. (10 Marks)
b. Explain the behaviour of wall, under axial and eccentric loading. (10 Marks)
- 6 a. Write down the steps involved in the design of masonry walls under gravity loads. (08 Marks)
b. Design an interior cross wall of a two storeyed building to carry 100mm thick R.C.C. slabs with 3m ceiling height. The wall is unstiffened and it supports a 2.65m wide slab.
Live load on roof = 1.5 kN/m^2 Live load on floor = 2 kN/m^2
Weight of 80mm thick terrace = 1.96 kN/m^2 Weight of floor finish = 0.2 kN/m^2
Wall thickness = 100 mm Crushing strength of brick unit = 10 N/mm^2
Mortar type = M_1
Lateral as well as rotational restraint at top and bottom. (12 Marks)
- 7 a. Explain the following :
i) Reinforced masonry ii) Shear strength of reinforced brickwork beams. (12 Marks)
b. Explain in detail, reinforced masonry shear walls. (08 Marks)
- 8 a. Explain the structural action of wall beams. (10 Marks)
b. Explain the structural action of in filled frames. (10 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification number, appeal to evaluator and/or equations written eg, 42+8, will be treated as malpractice.