

B. Arch 3rd Semester Examination I&IO
Material and Methods of Construction (AR-302)

Time: 3 hours

Full Marks: 70

Answer Any Five Questions

1. (a) What is a shallow foundation? 2
(b) Explain the situation where shallow foundation is used in construction. 3
(c) What is the difference between ultimate bearing capacity and safe bearing capacity? 2
(d) What is differential settlement? Explain with sketches. 3
(e) Explain with sketch the details of combined footing. Indicate the utility of combined footing. 4

2. (a) Explain with sketch the influence of faulty construction on dampness in building. 3
(b) What are the various effects of dampness in a building? 3
(c) What is the difference between membrane damp proofing and integral damp proofing? 3
(d) Explain with sketch the treatment of floor in a damp soil. (3)
(e) Indicate the damp proof treatment in exposed brickwork. (2)

- 3.(a) Draw a neat sketch of a two centered arch and indicate the following:
 Springing line, Extrados, Spandril, Rise, Abutment. (5)
(b) Explain with sketch the method and sequence of construction of an arch. (5)
(c) Explain the advantages of arch construction for spanning of opening in a small residential building. (4).

- 4.(a) Explain with sketch the difference between Quarter Turn Stair and Half Turn Stair. (4)
(b) Explain with sketch the difference between (i) stair with slab spanning horizontally and (ii) stair with slab spanning longitudinally. (10)

5. (a) What are the factors to be considered for selection of materials for upper floor construction ? (3)
(b) Explain with sketch the details of a Single Joist Timber Floor Construction. (11)

6. (a) Explain with sketch the details of a Jack Arch Floor Construction. (10)
(b) What are the precautions to be taken for construction of Jack Arch Floors? (4)

- 7 (a) What are the factors which influence the shape of a roof in a building? (3)
(b) Explain the comparative advantage and disadvantage of a flat and slope roof. (3)
(c) Draw a proportionate sketch of a slope roof and indicate the following:
 Gable, Hip, Ridge, Eave, valley, Verge. - W
(d) What is the difference between a Gable Roof and Gambrel Root. (2)