

20107  
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B. Arch 3<sup>rd</sup> Semester Examination  
**Sub: Materials and Methods of Construction-III**  
**Sub. Code: AR 302**  
Full Marks-70  
Time-3 hrs.

**First Half:**

**Answer any three questions**

1. (a) What are the functions of foundation in a building? 3  
(b) What is the limitation of a shallow foundation? 2  
(c) What do you mean by bearing capacity of soil? How does it affect the design of foundation in a building? 3  
(d) What are the factors that are responsible for differential settlement in a building? 4  
(e) What is the difference between Simple Wall Footing and Reinforced Concrete Footing? 2
2. (a) What are the effects of dampness in a building? 3  
(b) What do you mean by capillary action and efflorescence in a building? 3  
(c) Explain the difference between integral damp proofing and guniting? 4  
(d) Explain with sketch the damp proof treatment of basement in a soil with high water table. 4
3. (a) What is the difference in the principles of load distribution in an arch and a lintel? Explain with sketch. 4  
(b) Explain with sketch different parts of a segmental arch. 4  
(c) Explain the sequence of arch construction. 3  
(d) What are the advantages of lintel compared to an arch? 3
4. (a) Explain with sketch the details of construction ( plans, elevations and sections) of a R.C.C. stair. 14

**Second Half:**

**Answer any two questions**

1. Explain with sketch the details of a Single Joist Timber Floor 14
2. (a) What is the difference between a conventional R.C.C. floor and Hollow Tile Floor 4  
(b) What are the factors that determine the selection of floor structure and floor materials in a building? 3  
(c) What are the advantages of Precast Concrete Floor? 3  
(d) Draw a three dimensional view and section of a typical Flat Slab Floor 4
3. (a) What is the difference between single and double pitch roof? 3  
(b) Explain with sketch the difference between a gable roof and gambrel roof. 4  
(c) Draw a neat anoted sketch of a King Post Truss Roof. 7