

**II B.Tech. I Semester Regular Examinations, November -2005**  
**BUILDING MATERIALS AND CONSTRUCTION**  
**(Civil Engineering)**

**Time: 3 hours**

**Max Marks: 80**

**Answer any FIVE Questions**  
**All Questions carry equal marks**

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1. (a) Discuss physical and chemical classification of rocks.  
(b) Explain Attrition and water absorption tests for stones.  
[8+8]
2. With the help of a neat sketch, explain the working of Hoffman's kiln for the burning of bricks.  
[16]
3. (a) i. State the advantages and disadvantages of high-alumina cement.  
ii. What are the precautions to be taken for the storage of cement?  
(b) Distinguish between quick lime and slaked lime.  
[4+4+8]
4. Explain the Macrostructure and Micro structure of a tree with suitable diagrams?  
[16]
5. (a) What is a raft foundation ? When and where is it preferred to other shallow foundations. Explain with a neat sketch.  
(b) What are floating foundations? Where are they useful? How does they differ from other foundations.  
[10+6]
6. (a) What are the merits and demerits of English bond over Flemish bond?  
(b) State the reasons for cracks in brick masonry.  
[8+8]
7. (a) What are curved roofs?  
(b) Describe the Method of construction of on R.C.C. flat roof.  
[4+12]
8. Differentiate between the following:-  
[4+4+4+4]
  - (a) Lime mortar and cement mortar.
  - (b) Beaded pointing & flush pointing.
  - (c) Flaking and peeling.
  - (d) Gugal and hump.

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1. (a) Discuss physical and chemical classification of rocks.  
(b) Explain Attrition and water absorption tests for stones.  
[8+8]
2. Describe the two field tests which may be carried out to determine the suitability of soil for the purpose of brick manufacture. [16]
3. (a) What is meant by artificial hydraulic lime? How is it manufactured?  
(b) How the various ingredients of the concrete mix are measured? Explain.  
[8+8]
4. (a) Compare softwoods with hardwoods.  
(b) Describe various uses of steel.  
[8+8]
5. Find the dimensions of a combined rectangular footing for two columns A and B, carrying loads of 500kN and 700kN respectively. Column A is 30cm × 30cm in size and column B is 40cm × 40cm in size. The center-to-center spacing of the columns is 3.4 meters. The safe bearing capacity of the soil may be taken as 150 kN/m<sup>2</sup>.  
[16]
6. What are the cavity walls. Explain the details of its construction with neat sketches.  
[16]
7. Define roof covering? What are the various types of roof coverings commonly adopted in India? Explain them in detail. [16]
8. What is painting? How is it carried out? What are its different types? [16]

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1. (a) Write a brief note on deterioration of stones.  
(b) Explain wedging and blasting methods of stone Quarrying.  
[8+8]
2. (a) Describe the process of burning bricks in intermittent kilns.  
(b) Give the detailed and neat sketch of the Hoffman's kiln.  
[8+8]
3. (a) What is soundness of cement ? how it is determined in laboratory ?  
(b) What is fineness of cement ? How it is determined in laboratory?  
[8+8]
4. (a) Explain different types of shakes in timber.  
(b) Explain in what way fiber-reinforced plastics can be alternate material to wood.  
[8+8]
5. (a) What do you understand by raft foundation? When do you prefer this type of foundation?  
(b) Explain with the help of sketches common types of raft foundation.  
[6+10]
6. Describe the following Rubble masonry with neat sketches. [4x4]
  - (a) Random rubble masonry.
  - (b) Dry rubble masonry.
  - (c) Polygonal rubble masonry.
  - (d) Flint rubble masonry.
7. (a) What are curved roofs?  
(b) Describe the Method of construction of on R.C.C. flat roof.  
[4+12]
8. Define scaffolding and mention its component parts. [16]

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1. (a) Give the classification and composition of glass.  
(b) State the general properties of glass.  
[8+8]
2. (a) What are the characteristics of a good tile.  
(b) Describe the advantages of floor tiles and roof tiles.  
[8+8]
3. (a) What are the chemical requirements for ordinary cement ?  
(b) How normal consistency of cement is determined in laboratory?  
[8+8]
4. (a) Describe the process of conversion of timber.  
(b) What are the factors that affect physical properties of steel.  
[8+8]
5. Three square columns 300 mm, 400 mm, and 450 mm, placed along a line at 3.5 m c/c, carrying 600 kN, 800 kN and 1000 kN respectively. The self weight of substructure may be assumed as 300 kN. Assuming bearing capacity of soil as 150 kN/ m<sup>2</sup>, design a trapezoidal combined footing for the above data. [16]
6. Name the different bonds used in brick masonry and what are the characteristics of Brick Bond. [16]
7. (a) What are the functions of lintels and Arches?  
(b) In a neat sketch, show the parts of the Arch going and explain the technical terms involved?  
[8+8]
8. (a) What are the requirements of good plaster?  
(b) Discuss the mortars which are used for painting and plastering.  
[6+10]

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