

**B. Arch Part II 2<sup>nd</sup> Semester Final Examination 2007**

**AR 202: MATERIALS AND METHODS OF CONSTRUCTION II**

**Time: 3 hours**

**Full Marks: 70**

**Answer ANY FIVE questions taking at least TWO from each group**

**GROUP A**

1. [a] Distinguish between mortar, plaster and concrete?  
[b] Briefly state the different types of mortars commonly used for building construction.  
[c] What mixes of cement mortar would you recommend for the following construction works: (i) brick work in foundation; (ii) brick work in superstructure; (iii) plastering of RCC roof slab; (iv) External Plastering work on brick masonry wall.  
[d] Write Short Notes on: (i) Fire-resistant mortar; (ii) X-ray Shielding mortar  

[2+2+4+(3+3)] = 14
2. [a] What are the 'Bogue's Compound' in Ordinary Portland Cement (OPC)? Why gypsum is added with the clinker, before grinding in ball-mills, in manufacturing of OPC?  
[b] Differentiate between Ordinary Portland Cement (OPC) and Pozzolana Portland Cement (PPC). Briefly discuss the advantages and disadvantages of Pozzolana Portland Cement when compared with Ordinary Portland Cement.  
[c] What do you mean by hydration of cement? Briefly mention the major hydrates, formed as the result of hydration of OPC, indicating their contribution towards strength development in cement paste.  
[d] What do you mean by grading of cement? Mention the major grades of cement available on India.  

[(2+1)+(1+3)+(2+3)+(1+1)] = 14
3. [a] What is meant by 'Cement Concrete of Grade M20' ?  
[b] Briefly state the important desirable properties of concrete.  
[c] What do you mean by 'water-cement ratio' in concrete? Explain how the improper water-cement ratio affects the strength of concrete mix.  
[d] What is 'curing' of concrete? Why is it essential to cure cement concrete work? What are the various methods commonly adopted for curing?  

[2+4+(1+2)+(1+1+3)] = 14
4. Write short notes on:  
[a] Bulking of Sand  
[b] Sulphate Resistant Cement  
[c] Slump test  
[d] Rapid Hardening Cement  

[2+4+4+4] = 14



## GROUP B

5. [a] Differentiate between the following with the help of suitable sketches:  
(i) Swing Door and Revolving Door; (ii) Sliding Door and Folding Door; (iii) Butt Hinges and Rising Butt Hinges  
[b] Furnish the details of construction of a 1/3 glazed timber paneled door, in the form of sketches with necessary dimensions and notes, to fit in a masonry opening of 2.4 m x 1.2 m.
6. [a] What is flush door? Classify timber flush door.  
[b] Describe the construction details of a solid core flush door with neat sketches.
7. [a] Differentiate between the following with the help of suitable sketches:  
(i) Gable window and Dormer window (ii) Awning & Hopper; (iii) Sliding window and Double Hung Window  
[b] Furnish the details of construction of a steel window, in the form of sketches with necessary dimensions and notes, to fit in a masonry opening of 1.5 m (width) x 1.35 m (height).
8. Write short notes on:  
[a] Rolling Shutter  
[b] Collapsible steel door  
[c] Bay window  
[d] Fire Door

[(3x2)+8] = 14

[(3+3)+8] = 14

[(3x2)+8] = 14

[4+4+4+2] = 14

