# B. Arch Part II 2<sup>nd</sup> Semester Final Examination 2009

## AR 202: MATERIALS AND METHODS OF CONSTRUCTION II

Time: 3hours Full Marks: 70

## Answer FIVE questions taking at least TWO from each group

### **GROUP A**

- 1. [a] What is meant by 'Cement Concrete of Grade M20'?
  - [b] Briefly state the important desirable properties of cement concrete.
  - [c] What is 'water-cement ratio' in concrete'? Explain how does the water-cement ratio affect 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

- 2. [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 morter 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+(4x1)+(3+3)] = 14

- 3. [a] What is meant by 'Bogue's Compound' in Ordinary Portland Cement (OPC)? Why gypsum is added with the OPC clinker before grinding in ball-mills?
  - [b] Differentiate between OPC and Pozzolana Portland Cement (PPC). Briefly discuss the advantages and disadvantages of PPC in comparison with OPC.
  - [c] What do you mean by grading of cement? Mention the major grades of cement available on India.

[(4+1)+(1+4)+(2+2)]=14

- 4. Write short notes on:
  - [a] Fiber Reinforced Concrete

- [b] Testing of sand for organic impurities
- [c] Slump test

[5+4+5] = 14

#### **GROUP B**

- 5. [a] Differentiate between the following with sketches:
  - (i) Swing door and revolving door
  - (ii) Sliding door and folding door
  - [b] Sketch the details of construction of a 2/3<sup>rd</sup> glazed timber paneled door, to be fit in a masoury opening of 1.2 m x 2.4 m (width x height), with necessary dimensions and annotations

[(3+3)+8] = 14

- 6. [a] Compare aluminium, as a material for construction of door and window, with timber and steel
  - [b] Illustrate the details of construction of a sliding aluminium window to be installed in a masoury opening of  $1.5 \text{ m} \times 1.35 \text{ m}$  (width x height).
  - [c] Prepare a schedule for the required different types of extruded sections and other accessories with their respective quantities.

[4+6+4] = 14

- 7. [a] Differentiate between the following with sketches:
  - (i) Gable window and dormer window
  - (iii) Bay window and corner window
  - [b] Illustrate the details of construction of a partially fixed steel casement window, with necessary dimensions and notes, to be fit in a masomy opening of 2.0 m x 1.35 m (width x height).

[(3+3)+8] = 14

- 8. Write short notes on:
  - [a] Hollow core flush door
  - [b] Clerestory window
  - [c] Fire door

[5+4+5] = 14

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