

B.Arch. Examination, 2022-23

(1st Year, 1st Semester)

Materials & Methods of Construction-I

Time : 3 hrs

Maximum Marks: 100

Note: Questions 1 is Compulsory.

Answer any 5 from the remaining questions

Q1. (a) Select the correct option (1 marks each) (5 marks) (25 marks)

1. The minimum thickness of a wall where Single Flemish bond can be used is:
 - (a) Half-brick thick
 - (b) One-brick thick
 - (c) One and a half brick thick
 - (d) Two-brick thick

2. The type of brick used to remove vertical joints in brick masonry is
 - (a) king closer
 - (b) cornice bricks
 - (c) Queen closer
 - (d) coping bricks

3. The dimensions of Modular Size bricks is
 - (a) 230mm x 114mm x 76mm
 - (b) 190mm x 90mm x 90mm
 - (c) 200mm x 100mm x 100mm
 - (d) 250mm x 125mm x 75mm

4. Whitish crystalline substances which appears on the surface due to presence of salts in plaster making materials and also in bricks is known as
 - (a) Crazeing
 - (b) Flaking
 - (c) Popping
 - (d) Efflorescence

5. An imaginary vertical line which includes the vertical joints separating two adjoining bricks is called
 - (a) Arris
 - (b) Perpend
 - (c) Lap
 - (d) Quoin

[Turn over

- Q1. (b) Write Short Notes on: Any 10 (2 marks each) (20 marks)
- i. Function of Alumina in Brick earth preparation
 - ii. Types of Gravity Loads.
 - iii. Function of Gypsum in Cement Manufacturing process
 - iv. Argillaceous Rocks with examples
 - v. Sulphate Attack in cement
 - vi. Tangential Sawing
 - vii. Puzzolonas and their types
 - viii. Refractory Bricks
 - ix. AAC blocks
 - x. Tempering process in brick earth preparation
 - xi. Deciduous Trees and examples
- Q2. Differentiate between:(Any 3) Make necessary sketches) (5 marks each) (15 marks)
- i. Heavy and Light Duty Bricks
 - ii. Bulls Trench Kiln and Hoffmann's Kiln
 - iii. Wet Rot and Dry Rot in Timber
 - iv. Heating and Wedging methods of stone quarrying
 - v. Rapid Hardening cement & Low Heat Cements
- Q3. Why is it important to study the properties of building materials? (15 marks)
What are the factors which influences the choice of a building material ?
List and define any 5 physical and thermal properties of building materials.
- Q4. Name any 5 types of stones used in building construction, and based on the properties explain their uses in construction. (15 marks)
- Q5. What is seasoning of Timber and why is it important? Also explain the methods of seasoning briefly. (3 +3+9) (15 marks)
- Q6. Explain the advantages of blended cements over Ordinary Portland cements. (15 marks)
- Q7. Name 5 wood based products, their characteristics and use in construction works. (15 marks)
- Q8. Explain with neat sketches Rat Trap Bond for one brick thick wall (for right angled quoin), its advantages in terms of energy efficiency and cost effectiveness. Draw necessary plan of courses, elevations and isometric view (Size of brick 250x125x75 mm) (15 marks)