

B.Arch. Examination, 2019
(1st Year, 1st Semester Exam 2019)
MATERIALS AND METHODS OF CONSTRUCTION-I

Full Marks: 100

Time: Three Hours

The figures in the margin indicate full marks

Question No.1 & 8 is compulsory and to answer any four from the remaining questions

- 1 (a) (i) The burnt clay bricks having compressive strength more than 40N/mm^2 are known as _____, used for bridges and foundations of industrial bricks.
- (ii) A brittle material is one for which the ultimate strain is _____%.
- (iii) The term terracotta means _____.
- (iv) The best tree for veneers is _____.
- (v) CSEB stands for _____.
- (vi) Fourth class bricks are also called _____ bricks.
- (vii) Marble is a metamorphic rock whose parent rock is _____.
- (viii) The relation between Length (L), Breadth (B) of a brick and Thickness of mortar (T) is _____.
- (ix) IPS flooring means _____.
- (x) The raking of joints in plastering is known as _____ 10
- (b) (i) Explain bonding in brick masonry and its various techniques. Illustrate with Sketches. 05
- (ii) What is the difference between Gravity Loads and Lateral Loads? Explain its impact on building construction.
- (iii) What is the difference between header bond and stretcher bond? 05
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2. (i) Define natural bed of a stone and its importance in construction showing examples of Stone masonry and Stone arch construction 3
- (ii) Explain chemical classification of rocks with examples and their use. 3
- (iii) Highlight the characteristics and application of the following stones in building construction: Marble, Basalt, Sandstone, Mooram & kota stone 5
- (iv) Explain with sketches the important features for making earthquake resistant stone masonry buildings. 4
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3. Briefly describe (any 5) (5x3= 15)
- i. Dressing of Stone
 - ii. Quarrying
 - iii. Preservation of stone
 - iv. Artificial Stone
 - v. Stone veneering
 - vi. Scale of hardness of stones

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| 4. | (i) Differentiate between dry rots and wet rots ? How are they caused and prevented. | 3 |
| | (ii) Explain ASCU treatment in timber | 3 |
| | (iii) Write short notes on Lamin board and Block Boards | 3 |
| | (iv) How are trees classified based on its mode of growth?
Give two examples and their use as building materials. | 6 |
| 5. | Differentiate between the following: (any 5) | (5x3= 15) |
| | i. King closer & Queen Closer | |
| | ii. Ashlar Masonry & rubble masonry | |
| | iii. Single Flemish Bond & Double Flemish Bond | |
| | iv. Natural Seasoning & Artificial seasoning | |
| | v. Tangential sawing & radial sawing | |
| | vi. Knots & Shakes | |
| 6. | Briefly explain the following : (any 5) | (5x3= 15) |
| | i. Why do we keep the frog upside in a brick masonry wall construction? | |
| | ii. Hoffman's Kiln and its important aspects. | |
| | iii. Importance of castellated beams | |
| | iv. Surface & Concealed condensation | |
| | v. Embodied energy of building materials. | |
| | vi. Green Building materials | |
| 7. | (i) What are the properties of good earth for brick making? | 2 |
| | (ii) Sketch and state the uses of coping brick, bull nose brick and quoin closer. | 3 |
| | (iii) What is efflorescence in bricks? What are its causes and remedies? | 3 |
| | (iv) Write short notes on refractory bricks, earthenware and porcelain. | 3 |
| | (v) What are the differences between common bricks and engineering bricks? | 4 |
| 8. | (i) Draw the plans , elevation and isometric view for a T joint brick masonry in Rat Trap Bond. (Size of brick 250mm x 125mm x 75mm) | 7.5 |
| | (ii) Draw the plans, elevation and isometric view for a T joint brick masonry in English Bond. (Size of brick 250mm x 125mm x 75mm) | 7.5 |