Ref. No. EX/Arch/T/111/2018

B.Arch. Examination, 2018

(1st Year, 1st Semester)

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) _____ is the property of a material to absorb water vapour from air.

(ii) A brittle material is one for which the ultimate strain is _____%.

(iii) _____ is one of the artificial puzzolana obtained by burning clay soils at specified predetermined temperatures.

(iv) The best tree for veneers is _____.

(v) _____method of quarrying is suitable for costly, soft and stratified Rocks.

(vi) The burnt clay bricks having compressive strength more than 40N/mm^2 are known as _____, used for bridges and foundations of industrial bricks.

(vii) Quartzite is a metamorphic rock whose parent rock is _____.

(viii) _____ enables the brick to retain its shape and imparts durability, prevents shrinkage and warping.

(ix) A _____is a structural horizontal block that spans the space or opening between two vertical supports.

(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)Explain Ultimate strength, ductility, stiffness, toughness and elasticity from a Stress- Strain diagram of concrete. 05

(iii) What is Natural bed of a stone? Explain its importance with sketches. 05

2. (i) What is chemical classification of rocks? Explain with examples. 3

(ii) Explain seasoning of stone and its importance 3

(iii) Highlight the characteristics and application of the following stones in building construction : Granite, Slate, Sandstone, Mooram & kota stone 5

(iv) Explain with sketches the important features for making earthquake resistant stone masonry buildings. 4

(5x3= 15)

3. Briefly describe (any 5)

i. Dressing of Stone

ii. Quarrying

iii. Preservation of stone

iv. Artificial Stone

v. Stone veneering

vi. Scale of hardness of stones

4. (i) Differentiate between dry rots and wet rots ? How are they caused and prevented. 3
(ii) Name the trees you would suggest for use in Bridges, Furniture& Music instruments. 3
(iii) Differentiate between Plywood and veneers. 3
(iv) How are trees classified based on its mode of growth? Give two examples of each and their uses as building materials. 6

5. Differentiate between the following: (any 5) (5x3= 15)
i. Single Flemish Bond & Double Flemish Bond.
ii. Ashlar Masonry & rubble masonry
iii. Lamin Board & Block Board
iv. Natural Seasoning & Artificial seasoning
v. Poor Lime & Hydraulic Lime
vi. Fine Aggregates & Coarse Aggregates.

6. Briefly explain the following : (any 5) (5x3= 15)
i. Different types of domes and its use with examples?
ii. Acoustic Materials with examples.
iii. Different types of Construction equipment used in construction.
iv. Formwork and its importance in construction.
v. Fire Resisting materials with examples.
vi. Green Building materials with examples

7. (i) How do you identify the best quality bricks at site without use of any instrument? 2
(ii) Sketch and state the uses of Queen closer, King closer and Half Bat brick. 3
(iii) What is efflorescence in brickwork? 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 Right angled joint brick masonry in English Bond for one brick thick wall Bond. (Size of brick 250mm x 125mm x 75mm). 7.5
Take a suitable scale.