

Time : 3 hours

Full Marks : 70

Instructions :

- (i) There are Nine Questions in this Paper.
 (ii) Attempt Five questions in all. akubihar.com
 (iii) Question No. 1 is Compulsory.
 (iv) The marks are indicated in the right hand margin.

1. Choose the correct option of the following (any seven)

2×7=14

- (a) The compressive strength of burnt clay bricks as per IS 1077 is
 (i) 100 kg/cm²
 (ii) 150 kg/cm²
 (iii) 100-150 kg/cm²
 (iv) 35-350 kg/cm²
- (b) The compacting factor test of cement concrete determines its
 (i) Strength
 (ii) porosity

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(iii) degree of compaction under loads

(iv) workability

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(c) Marble is quarried by

- (i) Blasting
 (ii) excavation
 (iii) heating
 (iv) wedging

(d) The Chemical used to protect stones in industrial towns is

- (i) Ba (OH)₂
 (ii) CaCl₂
 (iii) H₂SO₄
 (iv) Caustic alkalis

(e) The main constituent of cement which are responsible for initial setting of cement is

- (i) Dicalcium silicate
 (ii) Tricalcium silicate akubihar.com
 (iii) Tricalcium aluminate
 (iv) all of the above

(f) The differential settlement in case of foundation on sandy soils should not exceed.

- (i) 25 mm
 (ii) 40 mm

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(iii) 65 mm

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(iv) 100 mm

(g) As compared to English bond, double Flemish bond

is

(i) Stronger

(ii) more compact

(iii) costly

(iv) none of above

(h) The triangular space formed between the extrados and the horizontal line drawn through the crown of an arch is known as

(i) haunch

(ii) spandril

(iii) voussoirs

(iv) skewbacks

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(i) The number of steps in a flight generally should not be less than

(i) 2

(ii) 3

(iii) 5

(iv) no limit

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(j) The bearing capacity of a water logged soil can be improved by

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(i) Compacting the soil

(ii) draining the soil

(iii) increasing the depth of foundation

(iv) grouting

2. (a) What are the methods of testing the properties of green concrete? 3

(b) How nominal mixed concrete is different from design mix concrete? 5

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(c) Describe the procedure of preparing good quality concrete. 6

3. (a) Describe the various weathering agencies responsible for deterioration of stones. Suggest the precautions to be exercised to reduce the decay of stones caused by these. 6

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- (b) Sketch free hand to a suitable scale the following
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- (i) Ashlar random and coursed rubble masonry in elevation.
- (ii) Isometric view of corner of one and half brick wall.
4. (a) Draw the plan and section of Dog-legged RCC staircase. 7
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- (b) Differentiate between strip footing and pad footing. 7
5. (a) What are the general principals observed in brick masonry? 7
- (b) Name the different bonds used in brick masonry. Show by sketches any two. 7
6. (a) Classify different types of cement and briefly describes their features. 7

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5

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- (b) Explain how preconstruction anti-termite treatment is done. akubihar.com 7

7. (a) What are the special types of doors and windows used in modern public buildings? Neatly sketch a wooden door 1/3 panelled and 2/3 glazed the size of door being 2.2 m×2.1 m. 7
- (b) Find the dimensions of combined rectangular footing for two column A and B, carrying loads of 500 kN and 700 kN respectively. Column A is 30cm × 30cm in size and column B is 40 cm × 40 cm in size. The centre to centre spacing of the column is 3.4 meters. The safe bearing capacity of the soil may be taken as 150 kN/m². akubihar.com 7
8. (a) Describe the method of Damp proofing for the foundations. 7
- (b) Enumerate various types of joints used in wood work. akubihar.com 7

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6

9. (a) Explain in brief with sketches, various basic forms of pitched roof. 7

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- (b) What do you understand by fire load? How do you determine it? 7

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