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### **BUILDING MATERIALS AND CONSTRUCTION**

Time Allotted: 3 Hours Full Marks: 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

### **GROUP - A**

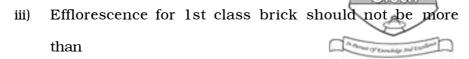
### ( Multiple Choice Type Questions )

1. Choose the correct alternatives for any ten of the following:

 $10 \times 1 = 10$ 

- i) The weight of a standard brick should be
  - a) 1000 gm
- b) 2500 gm
- c) 1500 gm
- d) 3000 gm.
- ii) The most important purpose of frog in a brick is to
  - a) emboss manufacturer's name
  - b) reduce the weight of brick
  - c) form keyed jiont between brick and mortar
  - d) none of these.

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a) 12%

b) 15%

c) 20%

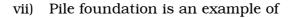
- d) 25%.
- iv) The optimum number of revolutions over which concrete is required to be mixed in a Mixer Machine is
  - a) 10

b) 20

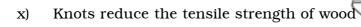
c) 50

- d) 100.
- v) Which of the following mortars is most suitable for construction work in water-logged areas?
  - a) Lime mortar
- b) Gauged mortar
- c) Cement mortar
- d) Mud mortar.
- vi) Seasoning of timber is necessary to
  - a) increase the fire resistance
  - b) increase vermin resistance
  - c) reduced the microbial substances
  - d) expel the moisture % in timber.

# CS/B.TECH(CE)NEW/SEM-3/CE-30



- a) shallow foundation b) deep foundation
- c) raft foundation d) none of these.
- viii) For complete hydration of cement, the w/c ratio needed is
  - a) less than 0.25
  - b) more than 0.25 but less than 0.35
  - c) more than 0.35 but less than 0.45
  - d) more than 0.45 but less than 0.60.
- ix) The compacting factor test of cement concrete determines its
  - a) strength
  - b) porosity
  - c) degree of compaction under loads
  - d) workability.



- a) along the grain
- b) across the grain
- c) tangential to the grain d) none of these.
- xi) In fire proof paints, the main constituent is
  - a) Aluminium powder
- b) Red lead
- c) Copper powder
- d) Asbestos fibres.
- xii) The bond in which all the bricks are laid with their length in the longitudinal direction of the wall is known as
  - a) Header bond
- b) English bond
- c) Stretcher bond
- d) Flemish bond.
- xiii) Width of door for public building is generally 1.2 m the height is in the range of
  - a) 1.5 m to 1.75 m
- b) 2 m to 2.25 m
- c) 2.5 m to 2.75 m
- d) 3 m to 3·25 m.

## CS/B.TECH(CE)NEW/SEM-3/CE-30

#### **GROUP - B**

### (Short Answer Type Questions)

Answer any three of the following.

 $3 \times 5 = 15$ 

- 2. What is efflorescence?
- 3. What is the good quality of soil for preparation of good bricks.
- 4. What are the ingredients of Port Land Cement? State the function?
- 5. State the effects of impurities present in lime. What is lime putty?
- 6. State the principal causes of decay of timber. What are dry & wet rots?
- 7. Compare English Bond with Flemish Bond.

#### **GROUP - C**

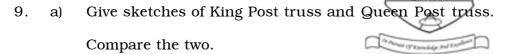
## (Long Answer Type Questions)

Answer any *three* of the following.

 $3 \times 15 = 45$ 

- 8. a) State the characteristics of good brick.
  - b) Explain the bond strength and stiffness property of aggregates.
  - c) On what factors bulk density of aggregates depends?

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- b) State briefly the essential requirements of a good roof.
- c) Compare merits & demerits of flat and pitched roofs.

$$5 + 5 + 5$$

- 10. a) Write a note on location of doors and windows.
  - b) How the sizes of doors & windows are fixed?
  - c) Compare wooden door with steel door. 5 + 5 + 5
- 11. a) Design a dog legged stair for a building in which the vertical distance between the floor is  $3.6\,$  m. The stair hall measures  $2.5\,$  m  $\times$   $5.25\,$  m.
  - b) Write a brief note on requirements of a good stair.

10 + 5

12. Write short notes on the following :

 $3 \times 5$ 

- a) Paints
- b) Distempers
- c) Varnishes.

13. State the advantage of seasoning. State the difference between natural seasoning & Kiln seasoning. State the advantage of Plywood. 5+5+5