

**S.E. (Civil) (I Sem.) EXAMINATION, 2009**  
**BUILDING MATERIALS AND CONSTRUCTION**  
**(2008 COURSE)**

**Time : Three Hours****Maximum Marks : 100**

- N.B. :—** (i) Answers to the two Sections should be written in separate answer books.
- (ii) Neat diagrams must be drawn wherever necessary.
- (iii) Figures to the right indicate full marks.
- (iv) Assume suitable data if necessary.
- (v) All questions are compulsory.

**SECTION I**

1. (a) Define bearing capacity of soil. Explain methods improving bearing capacity of soil. [6]
- (b) What is D.P.C. and its use for parapets ? [6]
- (c) Write a short note on underpinning. [4]
- Or*
2. (a) Explain open test pit method of site investigation with sketch. [6]
- (b) Write down the circumstances where the following types of foundations are used :
- (1) Strap footing
- (2) Trapezoidal footing
- (3) Mat foundation

(4) Combined footing

(5) Under reamed pile foundation

(6) Sheet pile foundation. [6]

(c) Write down detailed test procedure to test efflorescence test of bricks. [4]

3. (a) Explain the situations in which reinforced brick masonry is used. [6]

(b) What are the curing methods of concrete ? Explain any *one* in detail. [6]

(c) Describe the construction procedure of composite masonry. [4]

*Or*

4. (a) Describe the formwork casting procedure for reinforced concrete column. [6]

(b) State the different types of joints provided in concrete work. [6]

(c) What is the purpose of providing cavity walls ? What advantages cavity walls have over the solid wall construction ? [4]

5. (a) Enlist the factors to be considered for the selection of flooring and state *four* types of tiles based on materials and I.S. specification. [6]

(b) Explain the procedure of construction of cement concrete flooring. [6]

(c) Explain in detail fixing of A.C. sheet. [6]

Or

6. (a) Explain with sketch :  
(i) Ridgecover  
(ii) Purlin  
(iii) Principal rafter. [6]
- (b) Enlist the forms of roof trusses and explain king post roof truss. [6]
- (c) Write a short note on space-frame structures. [6]

## SECTION II

7. (a) Explain with sketch :  
(i) Horn  
(ii) Holdfast  
(iii) Lock rail. [6]
- (b) To maintain the stability of arches, which points will you consider ? [6]
- (c) Enlist the types of plasters and explain cement plaster. [6]

Or

8. (a) What is scaffolding ? State the different types of scaffolding and explain any *one* in detail. [6]
- (b) Show clearly the following parts with a sketch of door : [6]
- (1) Panel
  - (2) Meeting style
  - (3) Horn
  - (4) Lock rail
  - (5) Holdfast.

(c) Write notes on :

(1) Varnishing

(2) Wall papering.

[6]

9. (a) Design a R.C.C. dog-legged staircase and draw a detailed plan for an office building, a staircase room available is 3 m × 5 m with the outer wall thickness of 0.23 m. Height of the ceiling is 3.6 m. The thickness of R.C.C. slab is 0.10 m. [6]
- (b) State the safety precautions to be observed during the excavation work. [6]
- (c) Write down the essential requirement of escalators. [4]

*Or*

10. (a) How to prevent the accidents on site ? [6]
- (b) Write a short note on ramps. [6]
- (c) Describe in detail essential components of raking shore. [4]

11. (a) Enlist the types of lime and explain fat lime. [6]
- (b) What is seasoning of timber ? What are the methods of seasoning ? [6]
- (c) Write a note on eco-friendly materials. [4]

*Or*

12. (a) Differentiate between glass cladding and aluminium cladding. [6]
- (b) Write down the advantages and disadvantages of the following materials : [6]
- (1) Glass
- (2) Ferrocete
- (c) Write a short note on Plaster of Paris. [4]