

S.E. (Civil) EXAMINATION, 2008
BUILDING MATERIALS AND CONSTRUCTION
(2003 COURSE)

Time : Three Hours

Maximum Marks : 100

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

SECTION I

1. (a) Describe the detailed procedure of setting out building in the field with sketch. [6]
- (b) Write down the circumstances where strap footing is used. Give sketch of strap footing. [6]
- (c) Explain differential settlement in detail. [4]

Or

2. (a) Explain open test-pit method of site investigation with neat and labelled sketch. [6]
- (b) Differentiate between : [6]
 - (i) Bearing pile and underreamed pile
 - (ii) Shallow foundation and deep foundation.
- (c) Define settlement. Write down the causes of differential settlement. [4]

3. (a) Write down the function of each of the following : [6]
- (i) Throating
 - (ii) Tothing
 - (iii) Cornice
 - (iv) Spalls
 - (v) Header stone
 - (vi) Bed joint
- (b) Explain the points to be observed during the construction of stone masonry foundation. [6]
- (c) Describe the compressive strength test on bricks. [4]

Or

4. (a) Describe the following technical terms with sketch : [6]
- (i) Throating
 - (ii) Tothing
 - (iii) Cornice
 - (iv) Queen closer
 - (v) Header stone
 - (vi) Vertical joint.
- (b) Define bond. Give the detailed sketch of stretcher bond. State the uses of stretcher bond. [6]
- (c) Describe masonry. Enlist the different units of masonry. [4]

5. (a) State different fixtures and fastenings used in doors and windows.
Explain any *four* hinges with sketches. [8]
- (b) State the method of construction of Arches. Explain with labelled sketch installation of centering for large spans arches. [6]
- (c) Differentiate between the following : [4]
- (i) Plastering and pointing
- (ii) Distempers and paints.

Or

6. (a) State different fixtures and fastenings used for doors and windows.
Explain with sketches different types of locks. [6]
- (b) Differentiate between :
- (i) Lintel and Arch
- (ii) Bay windows and Dormer window. [6]
- (c) Describe the different types of tools used in plastering with sketches. [6]

SECTION II

7. (a) Name the types of flooring materials available in market. State advantages and limitation of each. [6]
- (b) What are the advantages of constructing steel roof trusses over timber trusses ? [6]
- (c) State circumstances under which each of the following is adopted : [6]
- (i) Pitched roof

- (ii) Flat roof
- (iii) Dome
- (iv) Shell roof

Or

8. (a) Draw neat and labelled sketch of queen post roof truss. [6]
- (b) What are the relative advantages and disadvantages of concrete floor ? [6]
- (c) What type of flooring do you recommended for the following ?
Discuss justifying your selection : [6]
- (i) Dancing hall
 - (ii) Garage
 - (iii) Bath room and W.C.

9. (a) Sketch the various types of welding joints. What are advantages of each joint ? [6]
- (b) Highlight the scope of steel as a structural material in the construction of building structures. [6]
- (c) What are various types of stairs ? [6]

Or

10. (a) What is vertical transportation ? Explain elevator in detail. [6]
- (b) Draw the various sections which can be adopted for compression member. [6]

(c) Explain the following terms : [4]

(i) Pitch

(ii) Nosing

(iii) Head room

(iv) Riser.

11. (a) What is shoring ? Mention the situations where shoring are needed. [5]

(b) Explain in detail the economic aspect of accidents in industry. [5]

(c) Mention the properties and uses of the following : [6]

(i) Aluminium

(ii) Gypsum

(iii) Ferrocete.

Or

12. (a) What is strutting ? Under what situations the use of strutting is warranted ? [5]

(b) What are the important aspects of storing of construction materials ? [5]

(c) What is meant by preservation of timber ? Describe *one* method briefly adopted for the preservation of timber. [6]