

S.E. (Civil) (I Semester) EXAMINATION, 2010

BUILDING MATERIALS AND CONSTRUCTION

(2008 COURSE)

Time : Three Hours

Maximum Marks : 100

N.B. :— (i) Answer to the two sections should be written in separate Answer-books.

(ii) Neat diagrams must be drawn wherever necessary.

(iii) Use of logarithmic tables, slide rule, Mollier charts, electronic pocket calculator and steam tables is allowed.

SECTION I

1. (a) Briefly explain the term foundation. Enumerate the various types of building foundation. [6]
- (b) Describe various causes of failure of foundation. [6]
- (c) What is setting out of foundation. Explain in brief. [4]

Or

2. (a) What general principles would you keep in mind while supervising a stone work ? What points would you apply to ensure strength, pleasant and comfort in stone masonry construction. [6]
- (b) What is the significance of bonding in brickwork ? Explain by sketches the difference between English bond and Flemish bond. [6]
- (c) Explain in short 'Defects in Brickwork.' [4]

P.T.O.

3. (a) Explain what do you understand by the term 'composite masonry'.
Draw neat sketches wherever necessary to support your answer. [6]
- (b) Write short notes on :
(i) Glass block masonry
(ii) Cavity wall [6]
- (c) Enlist advantages of hollow concrete block masonry over the stone masonry. [4]

Or

4. (a) Name the various temporary structures used in the building construction works. State the objectives of using each. [6]
- (b) What are the essential requirements of a good form work? [6]
- (c) Write short note on form work for columns. [4]
5. (a) Explain the construction procedure of a concrete floor, giving its relative merits and demerits. [6]
- (b) Explain the following by means of neat sketches : [6]
(i) Floor Ceilings
(ii) Herring-bone strutting in Timber floors
- (c) Differentiate between the following : [6]
(i) Floors and Flooring
(ii) Basement floors and suspended floors
(iii) RCC slab floor and flat slab floor.

Or

6. (a) Define the following terms as used in pitched roof constructions : [6]

(i) Template

(ii) post-plates

(iii) Pitch of a roof

(iv) Jack rafters

(b) Discuss the various factors which require due consideration while selecting a roof-covering for a building. [6]

(c) Write notes on : [6]

(i) Shell structures

(ii) Folded plate structures

SECTION II

7. (a) Discuss briefly the following aspects as applied to doors and windows : [6]

(i) Function or purposes

(ii) Location

(iii) Sizes

(b) Define the following terms : [6]

(i) Stile

(ii) horn

(iii) Sill

(iv) Reveal

(v) Mullion

(vi) Transom.

(c) Explain in short double hung sash window. [4]

Or

8. (a) What are the functions of Arches and lintels ? Give relative merits of lintels over the arches. [6]

(b) Differentiate between the following : [6]

(i) Extrados and intrados

(ii) Spandril and haunch

(iii) Axed arch and gauged arch

(c) "In modern times, R.C.C. lintels have practically replaced all other materials used for lintels." Comment on the axiom. [4]

9. (a) Discuss the various considerations that are made in planning of stair-cases. Illustrate the different types of staircases generally used, indicating their suitability for specific use. [6]

(b) What are the limitations on different types of stair-cases in regard to their rise and tread. How would you choose them for : [6]

(i) House

(ii) School

(iii) Hospital

(iv) Railway station.

(c) What shall happen : [4]

(i) If the slope of the staircase is less than 25° and more than 40° with the horizontal.

(ii) If a straight flight stair is erected to reach first floor without any midlanding.

Or

10. (a) State six important safety precautions to be observed on building site. [6]

(b) Explain the term 'Shoring'. State important points to be observed in case of raking shores. [6]

(c) Describe briefly the fire resisting properties of common building materials. [4]

11. (a) What are the properties of plastics in general ? Discuss their uses and the future of plastics for use in building industry. [6]
- (b) What is meant by preservation of timber ? Describe briefly the various methods adopted for the preservation of timber. [6]
- (c) Mention the properties and uses of the following : [6]
- (i) Aluminium
 - (ii) Gypsum
 - (iii) Mastic

Or

12. (a) What are the outstanding qualities of glass ? Discuss various varieties of glass and their use in building industry. [6]
- (b) Explain the importance of ceramic product in building industry. [6]
- (c) Write notes on : [6]
- (i) Glass claddings
 - (ii) Eco-friendly materials