



(Following Paper ID and Roll No. to be filled in your Answer Book)

**PAPER ID : 100306**

Roll No.

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## B. Tech.

(SEM. III) (ODD SEM.) THEORY  
EXAMINATION, 2014-15

### BUILDING MATERIALS AND CONSTRUCTION

Time : 3 Hours]

[Total Marks : 100

- Notes :** (1) Attempt all questions.  
(2) All questions carry equal marks.

**1** Attempt any FOUR parts of the following : **5×4=20**

- List and define the physical properties of building materials. Also give their economical aspects.
- Describe the various weathering agencies responsible for deterioration of stones. Suggest the precautions to be exercised to reduce the decay of stone caused by these.
- Write the efflorescence in bricks and how will you classify the presence of efflorescence in bricks.
- Write short notes on natural fly ash, artificial fly ash, surkhi and ash pozzolona.
- State the qualities you will consider in selecting timber for construction purposes.
- Classify the different types of fine grades of road tar as per the Indian standard code.

2 Attempt any four parts of the following :  $5 \times 4 = 20$

- (a) Write about all the mechanical properties of plastic materials. Also give their relative advantages for the construction.
- (b) What are the factors to be considered for successful application of paint on cement plastered surfaces ?
- (c) Explain the principles of hot and cold working of steel. Also show the stress – strain curve for the mild steel.
- (d) "Aluminium" is widely used for the construction work. Give its utility with the help of its various properties.
- (e) Classify the glasses on the basis of their constituents. Also describe briefly the use of glass as a building material.
- (f) What are the various types of sound insulating material you use in the building construction works ?

3 Attempt any TWO parts of the following :  $10 \times 2 = 20$

- (a) What are the various components of building with their basic requirements ? Also write the various requirements of good stair case. How are the treads and risers proportioned ?
- (b) Describe the procedure which is adopted for providing the damp – proof course in an existing wall.
- (c) Explain the different bonds used in brick masonry ? Explain about the single Flemish Bond for  $1\frac{1}{2}$  brick wall, 2 – brick wall and  $2\frac{1}{2}$  brick wall masonry using their neat sketches.

4 Attempt any TWO parts of the following :  $10 \times 2 = 20$

- (a) What are the functional requirements for the design and construction of windows ? Give the name of various types of windows used in the construction work. Briefly discuss the glazed and sky light windows with the help of their neat sketches.
- (b) Differentiate between the following :
  - (i) Mansard roof truss and truncated truss.
  - (ii) Pitched roof and flat roof.
  - (iii) King post roof truss and queen post roof truss.
- (f) What are the various function of lintels and chhajjas ? Explain, with neat sketches, various ways of using stone and R. B. lintels.

5 Attempt any TWO parts of the following :  $10 \times 2 = 20$

- (a) What are the factors used for the design of water distribution system for ordinary low – rise building ? Discuss the various types of fittings used for the water supply.
- (b) Describe the various methods which can possibly be adopted for heat insulation of exposed walls, roofs and exposed doors, windows and other openings of a building.
- (c) What are the common defects of plastering and what are their remedies ? Also write in brief about the following types of pointing with their neat sketch :
  - (i) Vee – Pointing.
  - (ii) Tuck Pointing.
  - (iii) Rubbed Pointing.