

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

PAPER ID : 0022

Roll No.

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B.Tech.

Third Semester Theory Examination, 2011-12

BUILDING MATERIALS & CONSTRUCTION

Time : 3 Hours]

[Total Marks : 100

Note: The question paper contains *three* sections.
Section-A, Section-B and Section-C with the weightage of 20, 30 and 50 marks respectively.
Follow the instructions as given in each Section.

Section-A

This question contains 20 objective type questions.
So give your answers in brief and attempt *all* parts of this question. $1 \times 20 = 20$

1. Give your answers in brief:
 - (a) Classify the gypsum.
 - (b) Write the suitability of heavy stones.

- (c) How will you cut the soft stones ?
- (d) Give the cause of the disease of dry rots in timber.
- (e) Write the main function of alumina in brick earth.
- (f) Define hydraulic lime.
- (g) Which gradients exert the maximum influence on the properties of steel ?
- (h) Write the vehicle used in case of enamel paints.
- (i) Differentiate English and Flemish bond.
- (j) Discuss about the proportions of lime and sand in the mortar for brick construction.
- (k) Write about the butt joint.
- (l) Write about the flat roofs.
- (m) Write the functions of cleats in a roof truss.
- (n) Define string.
- (o) What is doglegged stairs ?
- (p) Differentiate gable window and lantern.

- (q) What is louvered door?
- (r) What is efflorescence?
- (s) From the point of view of maximum day light, the windows in a room should be located on which side.
- (t) In 10 DS 20; DS refers for what?

Section-B

2. Attempt any *six* parts. All parts carry equal marks. 5×6=30

- (a) Which factors you will consider for the choice of a building material?
- (b) Name the various types of stones which are used for building works. Give the specifications for a good building stones.
- (c) What are the characteristics of a good brick ?
Write also the ingredients of a good brick earth.

- (d) Write short notes on natural fly ash, artificial fly ash, surkhi and ash pozzolona.
- (e) What are the various factors which will affect the strength of the timber?
- (f) What are the various ingredients of the plastics? Give their specific uses.
- (g) Classify different type of varnish and briefly describe them.
- (h) Briefly describe the properties and uses of sound insulating materials.

Section-C

Attempt any *two* parts from each question. All questions are compulsory. $10 \times 5 = 50$

3. (a) Write the efflorescence in bricks and how will you classify the presence of efflorescence in bricks?
- (b) What is plywood and where is it used with advantage? State its uses in modern buildings.

- (c) Discuss the general properties of bituminous materials.
4. (a) Write about all the mechanical properties of plastic materials. Also give their relevant advantages for the construction.
- (b) Differentiate ferrous and non-ferrous metals. Give two examples of each type and state their properties and uses.
- (c) Briefly describe the properties and uses of heat insulating material.
5. (a) What are the various components of building with their basic requirements?
- (b) What are the various techniques and methods of damp prevention?
- (c) Write about the various requirements of a good staircase. How are the treads and risers proportioned?

6. (a) Explain with neat sketches various types of R.C.C. floors with their relevant uses.
- (b) What are the functional requirements for the design and construction of doors and windows?
- (c) What are the different bonds used in brick masonry? Explain about English Bond 1-brick, 1½ brick and 2-brick thick wall masonry using a neat sketch.
7. (a) Which design factors affect the elevator or lift system? Also write the design parameters.
- (b) Differentiate between the plastering, pointing, distempering, colour washing and painting.
- (c) How will you prevent the cracks and leaks in the building? Also explain the process of repairing the cracks and leaks.