

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

PAPER ID : 0022

Roll No.

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B. Tech.

(SEM. III) ODD SEMESTER THEORY EXAMINATION
2010-11

BUILDING MATERIALS & CONSTRUCTION

Time : 3 Hours

Total Marks : 100

Note :—Attempt **all** the questions. All questions carry equal marks.

1. Attempt any **four** parts : **(5×4=20)**
 - (a) List and define the physical properties of building materials.
 - (b) What are the characteristics of a good brick ? Write also the ingredients of a good brick earth.
 - (c) Describe the common defects in bricks.
 - (d) Name the various types of stones which are used for building works. Give the specifications for a good building stones.
 - (e) State the qualities you will consider in selecting timber for construction purposes.
 - (f) Discuss the general properties of bituminous materials.
2. Attempt any **four** parts : **(5×4=20)**
 - (a) Plot the stress-strain curve for mild steel. Explain all the points in this curve.

(b) What is the difference between ferrous and non-ferrous metals? Give two examples of each type and state their properties and uses.

(c) Classify the glasses on the basis of their constituents. Also describe briefly the use of glass as a building material.

(d) What are the various ingredients of the plastics? Give their specific uses.

(e) Classify different type of varnish and briefly describe them.

(f) Briefly describe the properties and uses of heat insulating material.

3. Attempt any **two** parts : **(10×2=20)**

(a) Write a note on the various components of a building and their basic requirements.

(b) What are the different bonds used in brick masonry? Explain about English Bond 1 brick, $1\frac{1}{2}$ brick and 2 brick thick wall masonry using neat sketches.

(c) Explain with neat sketches various types of R.C.C. floors and also state where do we use these floors?

4. Attempt any **two** parts : **(10×2=20)**

(a) What are the functional requirements for the design and construction of doors and windows? Briefly discuss with the neat sketches :

I. *Battened and ledged doors.*

II. *Battened, ledged and braced doors.*

(b) What are the factors to be considered in selecting a roof covering for a building? Also give the relative advantages of steel roof trusses over the timber sloping trusses.

(c) Explain, with neat sketches, various ways of using steel and R.C.C. lintels. Also show the R.C.C. lintel with chhajja projection.

5. Attempt any **two** parts : **(10×2=20)**

(a) Explain in details, various fire resisting materials with their relevant uses and specifications.

(b) What is the difference between a lift and an escalator? What are the functional requirements of a lift in a building?

(c) As a civil engineer, how will you prevent the cracks and leaks in the building? Also explain the process of repairing the cracks and leaks.