

(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.