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Total No. of Pages : 01

Total No. of Questions : 08

M.Tech (Structural Design) (2016 & Onwards) (Sem.-1)

MATERIAL TECHNOLOGY

Subject Code : MTSD-101

Paper ID : [74242]

Time : 3 Hrs.

Max. Marks : 100

INSTRUCTION TO CANDIDATES :

1. Attempt any FIVE questions out of EIGHT questions.
2. Each question carries TWENTY marks.

- Q1. a) Describe test procedure to determine the compressive strength of cement. (10)
- b) Write the factors affecting strength of concrete in detail. (10)
- Q2. Name and explain in detail different mechanical tests to be conducted on hardened concrete. (20)
- Q3. a) Explain the importance of creep and shrinkage. (10)
- b) Define permeability of concrete. Also mention the factors affecting the permeability of concrete. (10)
- Q4. a) List the methods for mix proportions and indicate the drawbacks of each method. (08)
- b) Explain step by step procedure of BIS method of mix design. (12)
- Q5. a) What is fiber reinforced concrete? What are its properties? Also mention applications of FRC. (08)
- b) With neat graphs, explain different modii of elasticity of concrete. (12)
- Q6. a) What does fatigue failure in concrete mean? Write the factors influencing fatigue strength of concrete. (10)
- b) Describe in detail behavior of constructional metals in tension and compression. (10)
- Q7. Discuss in detail creep-stress-time-temperature relations for tension. (20)
- Q8. Write short notes on following :
- a) Deformation of crystals. (07)
- b) Chemical attack of concrete. (07)
- c) Workability, segregation and bleeding. (06)