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Thapar Institute of Engineering and Technology, Patiala

Department of Civil Engineering

MID SEMESTER EXAMINATION

B. E. (Second Year): Semester-III (2019/20)

Course Code: UCE308

(CED)

Course Name: Building Materials

September 26, 2019

Thursday, 10.30 – 12.30 Hrs

Time: 2 Hours, M. Marks: 50

Name of Faculty: RS

Note: Attempt all questions

Assume missing data, if any, suitably

- Q.1 Describe the followings;
- 1) Function of ingredients of cement (5)
 - 2) Manufacturing of cement using Dry Process (5)
 - 3) Setting and Hardening of cement (1)
 - 4) Pozzolana (1)
- Q.2 How the grading of aggregates (Fine and Coarse) governs the properties of concrete. What are the various types of grading. (8)
- Q.3 Differentiate between Gauged Mortar and Surkhi Mortar. (5)
- Q.4 Describe the importance of following in quality concrete production;
- 1) Water/Binder ratio
 - 2) Shape of Aggregate
 - 3) Saturated Surface Dry (SSD) Aggregate (5)
 - 4) Aggregate/Cement Ratio
 - 5) Degree of Workability
- Q.5 (a) How plasticizer able to reduce the water/binder ratio without affecting the workability? Explain the mechanism of plasticizer with the help of neat sketch. (5)
- Q.5 (b) How Air Entraining Admixture act as a safety valve in concrete during freezing and thawing? (5)
- Q.5 (c) How corrosion affects the concrete reinforcement bond? Explain the mechanism of Corrosion Inhibitor Admixture. (5)
- Q. 6 Comment on the following statement;
- 1) A sample of concrete exhibits a tendency for separation e.g. coarse aggregate separate from the rest of the ingredients (5)
 - 2) The appearance of water along with some particles of cement and very fine sand on the surface of freshly placed concrete after compaction