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SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year I Semester Supplementary Examinations November-2020
CONCRETE TECHNOLOGY
(Civil Engineering)

Time: 3 hours

Max. Marks: 60

(Answer all Five Units 5 x 12 = 60 Marks)

UNIT-I

- 1 Discuss the difference between the wet and dry process of manufacturing of Portland cement and draw the flow diagrams for wet and dry process. 12M

OR

- 2 What are Bouge's compounds? Explain in detail how each one of these compounds influences the strength and setting properties of cement. 12M

UNIT-II

- 3 a Explain in detail the slump test with the help of a neat sketch. Discuss its merits and limitations. 9M
b Mention the various mechanical properties of concrete. 3M

OR

- 4 a Explain the relation between compression strength and tensile strength of concrete 6M
b Write short notes on different methods of curing adopted in concrete. 6M

UNIT-III

- 5 a Explain Schmidt's Rebound Hammer test and the limitations and applications of the same. 8M
b What are the factors that affect the creep and shrinkage of concrete? 4M

OR

- 6 a Explain in detail about NDT. 6M
b How the shrinkage of concrete is classified and explain each one of them briefly? 6M

UNIT-IV

- 7 12M

Design a M25 concrete mix using IS method of Mix Design for the following data:

- 1) Maximum size of aggregate - 20mm (Angular)
- 2) Degree of workability - 0.90 (Compaction Factor)
- 3) Quality control – Good
- 4) Type of exposure – Mild
- 5) Specific Gravity A. Cement - 3.12 B. Sand - 2.63 (C. Coarse aggregate - 2.66)
- 6) Water absorption: A. Coarse aggregate - 0.5% B. Fine aggregate - 1.0%
- 7) Free surface moisture: A. Coarse aggregate - Nil B. Fine aggregate - 2.2%
- 8) Sand conforms to Zone I grading.

Assume any other data required suitably.

OR

- 8 a Explain the mix design procedure of concrete as per ACI code Method. 10M
b How is the mixing operation done in concrete? 2M

UNIT-V

- 9 a** i) What is light weight concrete? How is it produced? **9M**
ii) What is the light weight aggregate concrete?
iii) Explain the workability scenario in light weight aggregate concrete?
- b** Write short notes on high density concrete. **3M**

OR

- 10 a** Explain the high performance concrete and what are the advantages of high performance concrete over conventional concrete? **9M**
- b** Explain self-healing concrete and bacterial concrete? **3M**

*** END ***