Roll No. _____

END SEMESTER EXAMINATION
SEMESTER- V

COURSE CODE :CE 508 | **DURATION : 3 (THREE)HRS**
COURSE TITLE : CONCRETE TECHNOLOGY | **MAXIMUM MARKS : 75**
SESSION : JULY-DECEMBER'2021 | **PASS MARKS : 35 %**

NOTE: *1. Attempt any 5 (five) questions.*
3. Mark for each question is shown against it.
4. Assume suitable logical data wherever necessary.

1. (a) When is cement said to be of good quality when tested during field test? **(2)**
(b) Differentiate between Nominal Mix and Design Mix Concrete. **(5)**
(c) What do you mean by normal consistency? What is its significance? How is it tested? **(8)**

2. (a) Explain the functions of fine aggregate and coarse aggregate in concrete. **(5)**
(b) The presence of certain aggregates in concrete may adversely affect the strength, workability & long-term performance of concrete. Write a short note on such materials. **(5)**
(c) What is Water-Cement ratio? How does it affect concrete? **(5)**

3. (a) Write a short note on: **(6)**
I. Retarding Admixtures
II. Mineral Admixtures
(b) What do you understand by M15 concrete? What is slump test of concrete? Approximately what slump values are required for low, medium and high workability of concrete? **(5)**
(c) What do you understand by efflorescence in concrete? How can it be prevented in concrete? **(4)**

4. (a) Explain any two methods of testing hardened concrete. **(7)**
(b) Explain sulphate attack in concrete and how it can be prevented. **(8)**

5. (a) Explain briefly the various factors affecting the mix design of concrete. **(5)**
(b) Explain the following terms: a) Standard deviation b) Creep in concrete c) Shrinkage Cracking d) Mean Characteristic Compressive strength of concrete e) Nominal Mix **(10)**

6. (a) What are the measures to be considered in case of cement and aggregates so as to form a proper concrete mix? **(5)**
(b) "Careful supervision during concrete manufacture is necessary for all concreting operations". Mention the concreting operations and also explain how we can systematically manufacture the concrete throughout the process. **(10)**

7. (a) Define curing. What is the impact of improper curing upon a structure? **(5)**
(b) "Operation of placing and compaction is interdependent". Justify with proper reasonings. **(5)**
(c) What do you mean by stripping time? What are the minimum stripping periods for different formwork types in a building construction? **(5)**

8 Design of M20 concrete mix as per IS:10262-2009 for the given datas: **(15)**
i. Grade designation : M20
ii. Type of cement : OPC 43 grade confirming to IS 8112
iii. Maximum nominal size of aggregates : 20 mm
iv. Minimum cement content : 320 kg/m3
v. Maximum water cement ratio : 0.55
vi. Workability : 75 mm (slump)

vii. Exposure condition : Mild
viii. Degree of supervision : Good
ix. Type of aggregate : Crushed angular aggregate
x. Maximum cement content : 450 kg/m3
xi. Chemical admixture : Not recommended

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