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**PRESIDENCY UNIVERSITY
BENGALURU**

**SCHOOL OF ENGINEERING
MID TERM EXAMINATION - NOV 2023**

Semester : Semester VII - 2020

Course Code : CIV3010

Course Name : Sem VII - CIV3010 - Repair and Rehabilitation of Structures

Program : B. TECH

Date : 2-NOV-2023

Time : 2:00PM - 3:30PM

Max Marks : 60

Weightage : 30%

Instructions:

- (i) Read all questions carefully and answer accordingly.
- (ii) Question paper consists of 3 parts.
- (iii) Scientific and non-programmable calculator are permitted.
- (iv) Do not write any information on the question paper other than Roll Number.

PART A

ANSWER ALL THE QUESTIONS

(5 X 2 = 10M)

1. Durability of concrete is a function of its permeability to moisture and gases. Mention any four factors influencing durability of concrete.
(CO1) [Knowledge]
2. Permeability of concrete is the ability of concrete to resist the ingress of moisture or air into the concrete matrix. List any four factors that influences permeability of concrete.
(CO1) [Knowledge]
3. Define spalling in concrete. Mention any two causes of spalling.
(CO1) [Knowledge]
4. Define crazing of concrete. Mention any two causes of crazing.
(CO1) [Knowledge]
5. Condition Survey is an examination of concrete for the purpose of identifying and defining areas of distress. List any two objectives of condition survey.
(CO2) [Knowledge]

PART B

ANSWER ALL THE QUESTIONS

(3 X 10 = 30M)

6. Structural integrity and failure is an aspect of engineering that deals with the ability of a structure to support a designed structural load without breaking and includes the study of past structural failures in order to prevent failures in future designs. Mention any five construction errors and design errors leading to failure of RCC structures.
(CO1) [Comprehension]

7. Shrinkage in concrete occurs when there is a change in moisture content. When concrete is mixed, water is added to enhance its workability. It's essential that the right proportion of water is used in the concrete. Describe the types of shrinkage cracks formed in the concrete that has an impact on the durability of concrete.
- (CO1) [Comprehension]
8. Condition survey for examining the concrete allows collection of a detailed information about the history of construction, assessment of existing condition and reserve strength of concrete. Briefly explain the process of Visual inspection of condition survey.
- (CO2) [Comprehension]

PART C

ANSWER THE FOLLOWING QUESTION

(1 X 20 = 20M)

9. Non-destructive testing methods may not always provide a comprehensive assessment of concrete strength or its underlying properties. In such situations, it becomes necessary to perform a semi-destructive test, like the Core Cutter Test, to obtain a more precise evaluation. Explain the process of strength assessment of concrete using Core cutter test.
- (CO2) [Application]