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**PRESIDENCY UNIVERSITY
BENGALURU**

SET - B

**SCHOOL OF ENGINEERING
END TERM EXAMINATION - JUN 2023**

Semester : Semester II - 2022

Course Code : CIV1008

Course Name : Sem II - CIV1008 - Basic Engineering Science

Program : B.Tech - All Programs

Date : 16-JUN-2023

Time : 1.00PM - 4.00PM

Max Marks : 100

Weightage : 50%

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.*
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PART A

ANSWER ALL THE QUESTIONS

(4 X 5 = 20M)

1. Precast Concrete is a construction product produced by casting concrete in a reusable mould or "form" which is then cured in a controlled environment, transported to the construction site and lifted into place. Outline any five advantages of precast construction.
(CO2) [Knowledge]
2. A highway pavement is a structure consisting of superimposed layers of processed materials above the natural soil sub-grade, whose primary function is to distribute the applied vehicle loads to the sub-grade. Bring out the differences between types of pavement.
(CO1) [Knowledge]
3. A dam is a physical obstruction constructed across a river to store the water in reservoir and divert it for multipurpose from its upstream side. Enumerate the components of a dam structure.
(CO1) [Knowledge]
4. A bridge is a structure which provides a safe passage for a road or railway track over obstacles, without closing the obstacle below. Based on the classification of bridges name any ten bridges.
(CO1) [Knowledge]

PART B

ANSWER ALL THE QUESTIONS

(5 X 10 = 50M)

5. Renewable resource management is an emerging field that focuses on the ecosystem structures and processes required to sustain the delivery, to humanity, of ecosystem goods and services such as food, clean water and air, essential nutrients, and the provision of beauty and inspiration. Write the difference between Renewable and Non-renewable sources of energy in a tabular form.
(CO3) [Comprehension]
6. Building Information Modelling (BIM) is a very broad term that describes the process for specifying, creating, and managing digital information about a built asset such as a building, bridge, highway or tunnel. Discuss the benefits of BIM.
(CO2) [Comprehension]
7. There are two types of Joints: Permanent and Temporary joints. Welding, Soldering and Brazing come under Permanent joints. It means it does not allow disassembly of joined components without rupturing them. Distinguish between Soldering and Brazing.
(CO4) [Comprehension]
8. The construction projects are becoming more demanding and complicated in construction and delay of projects would arise if conventional construction method is used. Delays in construction are costly and have prompted developers to embrace mechanization. In relation to this discuss about the earth moving equipments.
(CO2) [Comprehension]
9. Irrigation Engineering deals with water management for agriculture purpose. Irrigation is the science of artificial application of water to the agricultural field in accordance with crop requirements throughout the period of growth for full maturity of crop. Describe different Irrigation methods.
(CO1) [Comprehension]

PART C

ANSWER ALL THE QUESTIONS

(2 X 15 = 30M)

10. Civil Engineering is a professional engineering discipline that deals with the planning, design, construction, operation, and maintenance of the physical and naturally built environment, including works like roads, bridges, canals, dams, and buildings. Demonstrate about any five civil engineering fields.
(CO1) [Application]
11. Soil Mechanics is the application of laws of mechanics and hydraulics to engineering problems dealing with soil as an engineering material. It deals with properties, behavior and performance of soil as a construction material or foundation support. The soil should be thoroughly checked for its bearing capacity and suitability for construction purposes. In relation to this based on the strength of soil near the ground surface illustrate the various types of foundations.
(CO1) [Application]