Roll No												

PRESIDENCY UNIVERSITY
BENGALURU

SET - A

SCHOOL OF ENGINEERING
END TERM EXAMINATION - FEB 2023

Semester : Semester I - 2022
Course Code : CIV1008
Course Name : Sem I - CIV1008 - Basic Engineering Sciences
Program : B.Tech - (All Programs)

Date : 21-FEB-2023
Time : 9.30AM - 12.30PM
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.

PART A

ANSWER ALL THE QUESTIONS **(10 X 2 = 20M)**

1. The vertical structures used to retain the earth behind the structure in a bridge as well as to support the dead and the live loads from the bridge superstructure is known as
a) Pier (CO1) [Knowledge]
b) Abutment
c) Deck Slab
d) Girder

2. Choose the correct sequence of load transfer in Framed structures
a) Slab-->Column-->Beam-->Footing (CO1) [Knowledge]
b) Slab-->Beam-->Column-->Footing
c) Beam-->slab-->Column-->Footing
d) Can't Say

3. Which of the following types of foundation is a deep foundation?
a) Strip foundation (CO1) [Knowledge]
b) Caisson foundation
c) Mat foundation
d) Combined footing

4. The use of mechanical and electrical systems **with computer control** for performing construction activities with minimum manual labour is known

a) Machine based Construction (CO2) [Knowledge]

b) Construction mechanization

c) Construction Automation

d) None of the above

5. The most used digital technologies in the construction planning for Project Management is

a) Primavera (CO2) [Knowledge]

b) AutoCAD

c) MS Word

d) Internet Expolorer

6. Out of the following, which coal has highest energy content?

a) Lignite (CO3) [Knowledge]

b) Bituminous

c) Anthracite

d) None of the above

7. Potential Energy is the energy possessed by a body by virtue of it's _____

a) Altitude (CO3) [Knowledge]

b) Motion

c) Charge

d) All of the above

8. Kinetic energy is the energy possessed by a body by virtue of it's _____

a) Altitude (CO3) [Knowledge]

b) Motion

c) Charge

d) All of the above

9. Forging Process is an

a) Additive manufacturing Process (CO4) [Knowledge]

b) Extrusion Process

c) Subtractive Manufacturing Process

d) Plastic Deformation Process

10. Which is the filler material used in Soldering?

a) Electrode (CO4) [Knowledge]

b) Solder

c) Spelter

d) None of the above

PART B

ANSWER ALL THE QUESTIONS **(5 X 10 = 50M)**

11. Digital construction in civil engineering is the process of using digital technologies to plan, design, construct and manage buildings and infrastructure. Mention any 5 digital technologies in construction and also list the advantages of using digital technologies.

(CO2) [Comprehension]

12. 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]

13. A heat engine is a machine, which converts heat energy into mechanical energy. It converts the chemical energy contained in the fuel into heat energy by the combustion. Write the classification of Internal Combustion Engine.

(CO3) [Comprehension]

14. The process of joining materials to make objects from three-dimensional model data, usually layer by layer, is commonly known as 3D Printing. Compare the additive manufacturing with Subtractive Manufacturing.

(CO4) [Comprehension]

15. Metal forming is a process where materials are subjected to plastic deformation to obtain the required size, shape, and/or change the physical and chemical properties. What are the different types of Metal Forming Process, explain them with proper diagram.

(CO4) [Comprehension]

PART C

ANSWER ALL THE QUESTIONS **(2 X 15 = 30M)**

16. (a) Calculate the electricity bill amount for a month of 31 days, if the following devices are used as specified.
(i) 3 bulbs of 40W for 6 hours
(ii) 4 tube lights of 50W for 8 hours
(iii) A T.V. of 120W for 6 hours
Given the rate of electricity is Rs. **2.50** per unit.
(b) What is the Electricity unit and how much it is in joules?

(CO3) [Application]

17. (a) Taylor’s tool life equation is given by VT^n = C, where V is n m/min and T is in min. In a turning operation, two tools X and Y are used. For tool X, n = 0.3 and C = 60 and for tool Y, n=0.6 and C = 90. Both the tools will have the same tool life for the cutting speed (in m/min, round off to one decimal place) of _____
(b) Using the Taylor's tool life equation with exponent n = 0.3334 and C = 60. If the cutting speed is reduced by 75%, Find the ratio of new tool life to original tool life.

(CO4) [Application]

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