Roll No											

PRESIDENCY UNIVERSITY
BENGALURU

SET - B

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. State whether the following statement given is true or false. "Load bearing structures are more resistant to Earthquake than framed structures".
(CO1) [Knowledge]
a) True
b) False
c) Can't say
d) Data is insufficient

2. The branch of Civil Engineering which deals with the design of beams, columns, slabs, footings etc. is called
(CO1) [Knowledge]
a) Transportation Engineering
b) Surveying
c) Structural Engineering
d) Geotechnical Engineering

3. When two columns are close to each other that their individual foundation would overlap, the type of foundation to be proposed is
(CO1) [Knowledge]
a) Isolated Footing
b) Strip Footing
c) Combined Footing
d) Mat Foundation

4. 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

5. BIM stands for

a) Building Information Management (CO2) [Knowledge]

b) Building Information Modelling

c) Built Information Modelling

d) None of the above

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

a) Lignite (CO3) [Knowledge]

b) Bituminous

c) Anthracite

d) None of the above

7. 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

8. Vane pump is type of _________

a) Reciprocating Pump (CO3) [Knowledge]

b) Positive Displacement Pump

c) Non-Positive Displacement Pump

d) Mixed Flow Pump

9. Which among the following(s) is/are a Joining Process?

a) Brazing (CO4) [Knowledge]

b) Soldering

c) Welding

d) All of the above

10. Which among the following is a Subtractive manufacturing Process?

a) Rolling (CO4) [Knowledge]

b) Wire Drawing

c) Turning

d) Casting

PART B

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

11. Construction is still one of the most labour-intensive businesses in the world. It entails several repetitive and time-consuming procedures that can be completed more quickly with robotics and automation. Construction robots also decrease human error and fatigue-related losses. Explain any 5 applications of robotics in construction industry.

(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 compressor is a mechanical device that increases the pressure of a gas by reducing its volume. An air compressor is a specific type of gas compressor. Compressors are similar to pumps: both increase the pressure on a fluid and both can transport the fluid through a pipe. Explain how reciprocating air compressor works in detail with Diagram.

(CO3) [Comprehension]

14. 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]

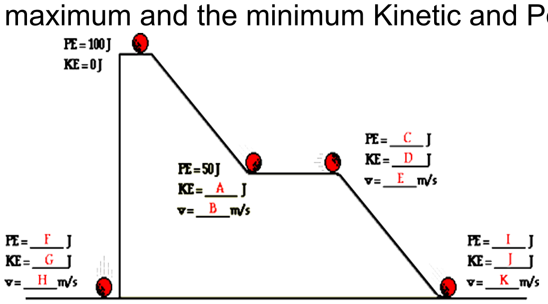
15. Joining is the process which is used to assemble different members to yield desired complex shapes and configurations which would otherwise difficult or not possible to make using other manufacturing process. Explain the working of Arc Welding in detail with proper diagram.

(CO4) [Comprehension]

PART C

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

16. Consider the falling and rolling motion of the ball in the following two resistance-free situations. In one situation, the ball falls off the top of the platform to the floor. In the other situation, the ball rolls from the top of the platform along the staircase-like pathway to the floor. For each situation, indicate what types of forces are doing work upon the ball. Indicate whether the energy of the ball is conserved and explain why. Finally, fill in the blanks for the 2-kg ball. Find all the from A to K. Also, mention the maximum and the minimum Kinetic and Potential Energy points.



(CO3) [Application]

17. (a) In a machining experiment, tool life was found to vary with the cutting speed in the following manner. The exponent (n) and constant (K) of the taylor's tool life equation are

Cutting Speed (m/min)	Tool Life (minutes)
60	81
90	36

(b) What is the percentage increase in tool life when the cutting speed is quartered?

(CO4) [Application]