# PRESIDENCY UNIVERSITY
## BENGALURU

## SCHOOL OF ENGINEERING
### MID TERM EXAMINATION - APR 2023

**Semester :** Semester II - 2022
**Course Code :** CIV1008
**Course Name :** Sem II - CIV1008 - Basic Engineering Science
**Program :** B.Tech - (All Programs)

**Date :** 17-APR-2023
**Time :** 9.30AM - 11.00AM
**Max Marks :** 50
**Weightage :** 25%

**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. During compression of the gas in compressor, the work is done _____.
   a) By the gas                                                                (CO3) [Knowledge]
   b) On the gas
   c) And pressure reduces
   d) And conversion to liquid state started

2. Spark Plug is available in
   a) Diesel Engine                                                            (CO3) [Knowledge]
   b) Compression Ignition Engine
   c) Petrol Engine
   d) All of the above

3. Which one of the following is a Subtractive manufacturing Process?
   a) Milling                                                                  (CO4) [Knowledge]
   b) Forging
   c) Casting
   d) Wire Drawing

4. Which one of the following(s) is/are a Joining Process?
   a) Brazing                                                    (CO4) [Knowledge]
   b) Soldering
   c) Arc Welding
   d) All of the above

5. Which is the filler material in Brazing?
   a) Electrode                                                  (CO4) [Knowledge]
   b) Solder
   c) Spelter
   d) Any of the above

## PART B

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

6. Pump is defined as a mechanical device that rotates or reciprocates to move fluid from one place to another. Classify the different types of Pumps, in addition to it, write the difference between Positive Displacement Pump and Non-positive Displacement Pumps.

   (CO3) [Comprehension]

7. Joining is one of the manufacturing processes by which two or more materials can be permanently or temporarily joined or assembled together. Compare the Welding Process with Soldering/Brazing in tabular form.

   (CO4) [Comprehension]

## PART C

### ANSWER THE FOLLOWING QUESTION                    (1 X 20 = 20M)

8. i) 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 as follows. What is the percentage increase in tool life when the cutting speed is quartered for the below information about tool?

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

   ii) An object of mass 1 kg is falling from the height $h$ = 10 m. Calculate
   a. The total energy of an object at $h$ =10 m
   b. Potential energy of the object when it is at $h$ = 4 m
   c. Kinetic energy of the object when it is at $h$ = 4 m
   d. What will be the speed of the object when it hits the ground?
   (Assume $g$ =10 m s-2)

   (CO4,CO3) [Application]