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**PRESIDENCY UNIVERSITY
BENGALURU**

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

Semester : Semester II - 2022

Course Code : CIV1008

Course Name : Sem II - CIV1008 - Basic Engineering Science

Program : CDV

Date : 18-MAY-2023

Time : 10.30AM - 12.00PM

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.*
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PART A

ANSWER ALL THE QUESTIONS

(5 X 2 = 10M)

1. Extrusion Process is a
 - a) Additive manufacturing Process (CO4) [Knowledge]
 - b) Extrusion Process
 - c) Subtractive Manufacturing Process
 - d) Plastic Deformation Process
2. 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]
3. Out of the following, which one has the highest energy content?
 - a) Lignite (CO3) [Knowledge]
 - b) Anthracite
 - c) Butiminuous
 - d) All are having same
 - e) Default option text

4. Which one of the following is a Subtractive manufacturing Process? (CO4) [Knowledge]
- Milling
 - Forging
 - Casting
 - Wire Drawing
5. Which one is the Rotary Pump? (CO3) [Knowledge]
- Screw pump
 - Hydrodynamic Pump
 - Plunger Pump
 - Axial Pump

PART B

ANSWER ALL THE QUESTIONS

(2 X 10 = 20M)

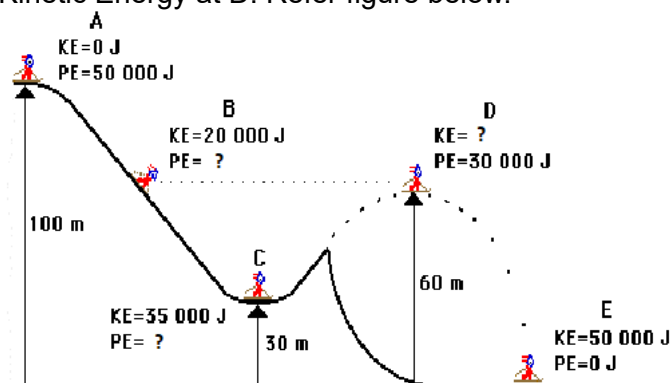
6. The process of joining materials to make objects from three-dimensional model data, usually layer by layer, is commonly known as 3D Printing. Compare the additive manufacturing with Subtractive Manufacturing. (CO4) [Comprehension]
7. A heat engine is a machine, which converts heat energy into mechanical energy. It converts the chemical energy contained in the fuel into heat energy by the combustion. Write any 5 classification of Internal Combustion Engine with example of each. (CO3) [Comprehension]

PART C

ANSWER THE FOLLOWING QUESTION

(1 X 20 = 20M)

8. a. Using the Taylor's tool life equation with exponent $n = 1/3$ and $C = 160$. If the cutting speed is reduced by 80%, Find the ratio of new tool life to original tool life. Also, calculate the percentage increase/decrease in tool life.
- b. Determine American ski jumper Lee Ben Fardest's (a mass of approximately 50 kg) speed at locations B, C, D and E. Assume frictionless surface. Also calculate Potential Energy at B and C, Kinetic Energy at D. Refer figure below.



(CO4,CO3) [Application]