Roll No. _____

1E3107

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B.Tech. I Sem. (Main) Examination, April/May - 2022

1FY3-07 Basic Mechanical Engineering

Time : 3 Hours

Maximum Marks : 70

Instructions to Candidates:

Attempt all ten questions From Part A, five Questions out of seven questions from Part B and three questions out of five questions from Part C .

Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No.205)

Part - A

(Answers should be given up to 25 words only)

All question are compulsory. **(10×2=20)**

1. State the first law of thermodynamics.
2. What do you mean by slip in belt?
3. Which pump require priming ? What is the need for priming.
4. Differentiate between brazing and soldering.
5. Mention the steps involved in designing of a part (Product)
6. Differentiate between COP and efficiency of system.
7. Write two important properties of steam.
8. List the four important properties of molding sand.
9. Give the example of any two allays and state their application.
10. Mention the different fields of mechanical engineering.

Part - B

(Analytical/Problem solving questions)

(5×4=20)

Attempt **any five questions:**

1. Give the types of welding and explain any one type of welding with neat sketch.
2. Compare the working of two stroke and four stroke internal compustion engine.
3. How is steam produced in a fire tube boiler. Explain with a neat figure.
4. Discuss any five properties of engineering materials.
5. Write short notes on
   i) Rolling
   ii) Extrusion.
6. Explain any one type of boiler with neat sketch.
7. Mention the difference between open and cross belt drive.

Part - C

(Descriptive/Analytical/Problem solving/Design Questions)

Attempt any three questions. *(3×10=30)*

1. List out major components of an automobile with their function.
2. Explain the different types of power transmission devices.
3. Explain the working of air-conditioning system.
4. Describe forging process with neat sketches.
5. With a suitable sketch explain the working of reciprocating pump.