

2E3206

Roll No. _____

Total No. of Pages: **2****2E3206****B. Tech. II - Sem. (Main / Back) Exam. - 2026****2FY3-07 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)

1. NIL2. NIL**PART – A****[10×2=20]****(Answer should be given up to 25 words only)****All questions are compulsory**

- Q.1 Define dryness fraction of steam.
- Q.2 Differentiate between fire-tube and water-tube boilers based on heat transfer mechanism.
- Q.3 What is priming in centrifugal pumps?
- Q.4 What is the function of carburetor in IC engine?
- Q.5 Define Ton of Refrigeration.
- Q.6 What is the function of mould in manufacturing?
- Q.7 What are different ways for mechanical power transmission?
- Q.8 Why open belt drive is used?

Q.9 ✓ Differentiate between brazing and soldering based on temperature range and strength.

Q.10 ✓ What are the objectives of heat treatment process of steel?

PART - B

[5×4=20]

(Analytical/Problem solving questions)

Attempt any five questions

- Q.1 Differentiate between impulse and reaction turbines.
- Q.2 Describe the working principle of a double acting reciprocating pump.
- Q.3 ✓ What are the functions of major components of IC engines? Explain in brief.
- Q.4 Describe the types of belt drives with neat sketches.
- Q.5 ✓ Explain the metal casting process and its steps.
- Q.6 Differentiate between petrol and diesel engines.
- Q.7 What is refrigerant? Explain about the important properties of a good refrigerant. <https://www.pyqonline.com>

PART - C

[3×10=30]

(Descriptive/Analytical/Problem Solving/Design Questions)

Attempt any three questions

- Q.1 Explain the formation of steam with a graph. Describe the working of any high-pressure boiler with neat and labelled diagram.
- Q.2 ✓ Classify the different types of IC engine. Explain the working of 2-stroke petrol engine with neat sketch.
- Q.3 ✓ Explain vapour absorption refrigeration system with neat sketch.
- Q.4 What are the common stages of heat treatment process? Explain the hardening heat treatment process with its advantages.
- Q.5 Write short note on following (any three) :
- (a) Coefficient of Performance (COP) of refrigeration system
 - (b) Arc welding process
 - (c) Compound Gear Train
 - (d) Gas turbine power plant