21507

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B. Tech. II - Sem. (Old Scheme) (Main) Exam., (Academic Session 2021- 2022) All Branch

2FY3 – 07 Basic Mechanical Engineering
Common to all Branches

Time: 2 Hours

Maximum Marks: 80
Min. Passing Marks:

Instructions to Candidates:

Part – A: Short answer questions (up to 25 words) 2 × 3 marks = 6 marks. Candidates have to answer **two** questions out of **five**.

Part – B: Analytical/Problem solving questions 3 × 15 marks = 45 marks. Candidates have to answer **three** questions out of **six**.

Part – C: Descriptive/Analytical/Problem Solving questions 1 × 29 marks = 29 marks. Candidates have to answer **one** questions out of **three**.

Schematic diagrams must be shown wherever necessary. Any data you feel missing may 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. NIL _____

2. NIL _____

PART – A

Q.1 Explain First Law of Thermodynamics.

Q.2 What are the application of boilers?

Q.3 What is priming of pump?

Q.4 What is forging?

Q.5 Write the name of different types of power plant.

PART – B

Q.1 (i) What do you mean by steam boilers? How they are classified?

(ii) What is mountings and accessories of boiler? Write any two name & use of mountings & accessories.

Q.2 Explain the working of centrifugal pump with suitable diagram.

Q.3 What are the various types of pattern? Describe the materials used for making pattern.

Q.4 Explain the process of extrusion and drawing of it with suitable diagram. Also, write its advantages & disadvantages.

Q.5 Explain the following terms in detail-

(i) Electric Arc Welding

(ii) Gas welding

Q.6 Explain the manufacturing process of cast iron & pig iron with suitable diagram. And also write the name of ores of iron.

PART – C

Q.1 A refrigerating system operates on the reversed Carnot Cycle. The higher temperature of the refrigerant in the system is 35°C & lower temperature is -15°C. The capacity is to be 12 tonnes. Determine -

(i) Co-efficient of performance

(ii) Heat rejection from the system per hour

(iii) Power required.

Q.2 (i) Explain major components of an engine & their function.

(ii) Differentiate between SI & CI engine.

Q.3 (i) Differentiate between ferrous & non-ferrous metals. Also, explain the property & use of any three types of non-ferrous metals.

(ii) What is metal casting? Discuss at least four casting defects with suitable diagram.