2E3206

Roll No. _____ Total No. of Pages: 3

2E3206

B. Tech. II - Sem. (Main / Back) Exam., - 2023

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 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

[10×2=20]

(Answer should be given up to 25 words only)

All questions are compulsory

Q.1 Explain in brief different types of steam turbines.

Q.2 What is priming in pumps? How it is done?

Q.3 Explain the specific function of fuel pump and injector in a diesel engine.

Q.4 Explain scavenging in a 2-stroke engine.

Q.5 State the desirable properties of refrigerants and also list few of the refrigerants used in Air Conditioning.

Q.6 What are the advantages of rope drive as compared to belt drive?

Q.7 Enumerate the various zones in a cupola furnace.

Q.8 What are the different reactions that take place in oxy-acetylene welding?

Q.9 Explain briefly the hot working and cold working of metals.

Q.10 State the main reasons why pig iron cannot be used for industrial applications?

PART – B

[5×4=20]

(Analytical/Problem solving questions)

Attempt any five questions

Q.1 What is compounding in steam turbine? Explain various types of compounding in impulse steam turbine with suitable schematic diagrams.

Q.2 What are the important differences between reciprocating pump and centrifugal pump? Also gives their applications.

Q.3 Compare and contrast the working of vapour compression and vapour absorption refrigeration systems. Draw schematic diagram of each.

Q.4 Describe the different types of gears with sketches.

Q.5 Explain the five types of pattern allowances with appropriate diagrams.

Q.6 Explain the drawing process with a schematic diagram.

Q.7 What are the applications of mild steel, medium carbon steel and high carbon steel?

PART - C

[3×10=30]

(Descriptive/Analytical/Problem Solving/Design Questions)

Attempt any three questions

Q.1 What are the differences between impulse and reaction turbines? Describe the working of Parson's reaction turbine with neat schematic diagram.

Q.2 Explain the differences between a petrol and a diesel engine with neat schematic sketches and diagrams along with suitable examples of some popular models and their applications.

Q.3 What is brazing process? What are brazing materials? Describe various brazing methods and how it is different from braze welding?

Q.4 What are common alloying elements used in steels? Describe the effect of each of them on the properties of steel along with their applications.

Q.5 Describe the Closed-Cycle OTEC System with a neat sketch. How it differs from Open-Cycle OTEC system?
