

1E2407

Roll No.

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B. Tech. II-Sem. (Back) Exam., Oct.-Nov. - 2020

ESC

2FY3 – 07 Basic Mechanical Engineering

Time: 2 Hours

Maximum Marks: 65
Min. Passing Marks: 23

Instructions to Candidates:

Attempt all five questions from Part A, four questions out of six questions from Part B and one questions out of three 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

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PART – A

(Answer should be given up to 25 words only)

[5×2=10]

All questions are compulsory

Q.1 Define Zeroth law of thermodynamics.

Q.2 What is priming in pump?

Q.3 Define coefficient of performance of Refrigerator. Also write its expression.

Q.4 What are the differences between Soldering and brazing?

Q.5 Define toughness and brittleness.

PART - B

(Analytical/Problem solving questions)

[4×10=40]

Attempt any four questions

- Q.1 What do you understand by steam boilers? How they are classified?
- Q.2 Describe the four stroke SI engine with the help of PV and TS diagrams.
- Q.3 What do you understand by the refrigeration system? Describe the most popular refrigerant cycle used in refrigerators. Explain their components in brief.
- Q.4 Describe the different types of the Gear trains with diagram and also derive their expression for speed ratio. ersahilkagyan.com
- Q.5 Explain the various forging operations with suitable neat diagrams.
- Q.6 Explain the various heat treatment methods with the help of suitable diagram.

PART - C

(Descriptive/Analytical/Problem Solving/Design Questions)

[1×15=15]

Attempt any one questions

- Q.1 What is Nuclear power plant? Explain the various components of Nuclear power plant. Describe the working of Nuclear power plant, advantages and disadvantages.
- Q.2 An engine, based on air standard otto cycle, is supplied with air at 0.1 MPa and 35°C. The compression ratio is 8. The heat supplied is 500 kJ/kg. For given working air specific heat capacity at constant pressure and at constant volume is 1.005 kJ/kgK, 0.718 kJ/kgK respectively, find the following-
- (a) Efficiency of an engine
 - (b) Temperature and pressure at the end of compression
 - (c) Maximum temperature of the cycle
- Q.3 What is Open Belt Drive? Derive the expression for the length of belt of open belt drive.