



Code No. : **5333/S**

FACULTY OF ENGINEERING
B.E. 2/4 (ECE/EE) I Sem. (Suppl.) Examination, July 2012
ELEMENTS OF MECHANICAL ENGINEERING

Time: 3 Hours]

[Max. Marks : 75

Note : Answer all questions from Part A. Answer any five questions from Part B.

PART – A

(25 Marks)

1. State the second law of thermodynamics.
2. How four stroke engine works ?
3. What are the advantages of multistage compressors ?
4. State Stefan-Boltzman law of radiation.
5. Classify the industrial heat exchangers.
6. Define COP and tonne of refrigeration.
7. Differentiate welding and soldering.
8. Distinguish forming and machinery process.
9. Define link and pair.
10. Draw epi-cyclic gear train.

PART – B

(50 Marks)

11. a) Derive steady flow energy equation. 7
b) During a cycle consisting of 4 processes, the heat transfers are 60 kJ, – 8 kJ, – 34 kJ and 6 kJ. Determine the net work of the cycle. 3
12. a) What are the types of heat exchangers ? 3
b) Sheets of brass and steel, each 10 mm thick, are placed in contact with each other. The outer surface of brass is at 100°C and the outer surface of steel is at 0°C. What is the temperature at the common interface ? Assume that the conductivities of brass and steel are in the ratio of 2:1. 7



13. a) What are the limitations of air refrigeration system ? 3
b) Explain vapour absorption refrigeration cycle with neat sketch. 7
14. a) Explain 3 types of flames in oxyacetylene welding. 5
b) Describe grinding operation with its applications. 5
15. a) Give applications of sand casting and die casting. 5
b) Explain extrusion process. 5
16. a) Differentiate mechanism and machines giving examples. 5
b) Derive the conditions for maximum power transmission for flat belt. 5
17. Write short notes on the following : 10
a) LMTD in neat exchangers.
b) Psychometry.
c) Rope drives.