

Code: CE1T5

I B.Tech-I Semester-Regular Examinations-February 2013

BASIC MECHANICAL ENGINEERING

(For Civil Engineering)

Duration: 3hours

Marks: 5x14=70

Answer any FIVE questions. All questions carry equal marks

1. a. Describe the types of patterns with neat sketches. [7M]
b. Discuss the properties of good moulding sand. [7M]
2. a. Explain the main features of gas welding and arc welding in detail. [7M]
b. Explain how the threading operation is done on a lathe. [7M]
3. a. What are the various devices used to transmit power? Explain with neat sketches. [7M]
b. Discuss the types of gears in detail with neat sketches. [7M]
4. a. What is a boiler? Explain the working principle and requirements of a boiler with a neat sketch. [7M]

- b. Explain the working principle and the components of a steam power plant with a neat sketch. [7M]
5. a. Draw the layout of vapour compression refrigeration system. State the function of each of the component and show the thermodynamic processes on a pressure-enthalpy diagram. [7M]
- b. Draw a simple layout of air conditioning system. Explain in detail. [7M]
6. a. Explain the working of Four Stroke Diesel engine with a neat sketch. [7M]
- b. Write short notes on 4-stroke and 2- stroke engines with neat sketches. [7M]
- 7.a. Describe the various types of stresses and strains and Hooke's law. [7M]
- b. Describe the stress-strain diagram of mild steel material by indicating significant points on it. [7M]
8. a. Explain the various mechanical properties of materials. [7M]

b. Briefly explain the various magnetic properties of materials.

[7M]