Roll No. .....

1988

B. E. (1st Semester)

Examination – December, 2011

ELEMENTS OF MECHANICAL ENGINEERING

Paper : ME-101-E

Time : Three hours] *[Maximum Marks : 100*

Before answering the question, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt any *five* questions and all questions carry equal marks

1. (a) Explain the differences between the Fire Tube and Water Tube Boilers 10

(b) Describe the process of Throttling calorimeter for measuring the dryness fraction of steam 10

2. (a) Explain the main parts, construction and working of Hydraulic Jack 10

(b) Define Specific Speed of a hydraulic Turbine and derive the relation for the same. 10

3. (a) Explain the construction and working of Four Stroke Petrol Engine with neat sketch. 14

(b) Explain the working and principle of gas turbine. 6

4. Describe the following : 20

(a) Types of Condensers

(b) Classification of Steam turbines

5. (a) Derive the relation for M. A., V. R. and efficiency of Compound screw Jack. 14

(b) Explain Reversibility and irreversibility of a Machine with example. 6

6. (a) Explain the working of single plate clutch with neat sketch. 10

(b) Describe working and construction of Prony Brake Dynamometer. 10

7. (a) Draw and explain the stress-strain diagram for a mild steel and show all the points. 10

(b) Derive the relation between Modulus of Elasticity (E) and Bulk Modulus (K). 10

8. Draw the S. F. and B. M. diagram for a Cantilever beam of length 8 m with load of 4 KN at the free end. Also calculate point of maximum B. M. and S. F. 20
