

End Semester Examinations - 2015-16 Even Semester - May 2016

14ME1003 Basic Mechanical Engineering

Set B

Time : 3 hrs
Total Marks: 100

1. a) Explain with a neat sketch the working and construction of Cochran Boiler (16)
b) Classify different types of boilers.(4)

OR

2. (a) Explain the working of a four-stroke petrol engine with suitable sketches. (14)
(b) State the difference between two stroke engine and four stroke engine (6)

3. Explain briefly about the Nuclear power plant with a neat sketch and list the advantages and disadvantages (20)

OR

4. Discuss the working of a solar power plant with an aid of a neat sketch. What are the limitations of the solar energy? (20)

5. A tension test was conducted on a steel rod at Strength of Material Laboratory and the following observations were made. Initial diameter 14mm, Gauge length 100mm, Yield point Load 41.5 KN, Ultimate load 69.2 KN, Load at rupture 61.6 KN, Diameter at neck 11.2mm, Elongation at break 38mm, Elongation at Load 25.1 KN is 0.08mm

Calculate (i) Modulus of Elasticity (ii) Yield strength (iii) Ultimate strength (iv) Nominal stress at Rupture (v) Actual stress at Rupture (vi) Percentage elongation and (vii) Percentage reduction in cross sectional area. (20)

OR

6. (a) Describe the stress strain curve of ductile materials (14)
(b) Explain the mechanical properties of metals and alloys (6)

7. Define the term ‘welding’ and explain the arc welding process with a neat sketch and also define the various terminologies associated with a typical weld.(20)

OR

8. Explain the step involved in making a mould with an aid of neat sketch (20)
9. Sketch and explain the principle parts and working of a Lathe machine (20)

Wishing you All the Best
