Total No. of Questions :5]   *[Total No. of Printed Pages :1*

BE - 203
B.E. I & II Semester Examination, December 2013
Basic Mechanical Engineering

Time : Three Hours
Maximum Marks : 70

Note: 1. Attempt all questions. All questions carry equal marks.

2. Use of steam tables and Mollier chart is permitted without written anything by Pen or Pencil.

1. Give classification of engineering materials. Give applications of cast iron and carbon steels (at least - 5) plot stress strain curve for Cast iron. Distinguish between stress-strain curve and true stress-strain curve.

OR

How does a stress-strain curve of a brittle material differ from a ductile material? Explain with the help of a plot. On which machine the tensile test of a material is performed. What is the object of performing Fatigue test on a material?

2. With the help of a neat sketch explain the working of a Combination set, mentioning its uses. Also give a neat sketch of a Sine bar set up for measuring an angle of a workpiece.

OR

Give types of Lathe. Name the various operations which can be performed on a Lathe Machine. What are the advantages of using a Taper Turning Attachment?

3. Define the terms:

a) Viscosity b) Pressure c) Kinetic energy d) Datum energy e) Compressible fluid

OR

Define pump, compressor, turbine, positive displacement machine, Pneumatic Machine.

4. State the differences between the following boilers.

a) Stationary and portable boiler

b) Forced circulation and Natural circulation boiler.

c) Externally and internally fired boiler.

d) Single tube and multi tube boiler.

OR

With the help of a neat sketch explain the working of a Babcock and Wilcox Boiler.

5. Define the term Diagram factor, as applied to a steam engine. Also define the term Indicator Diagram and explain how it is obtained?

OR

Define the following terms as applied to a steam engine.

a) Clearance b) Swept volume c) Mean piston speed d) Dead centres

e) Crank throw f) Piston stroke g) Cylinder bore