PVP 12

Code: **ME2T5, EM2T5**

I B.Tech - II Semester - Regular Examinations - July 2014

BASIC MECHANICAL ENGINEERING
(Common for ME & ECM)

Duration: 3 hours Marks: 5x14=70

Answer any FIVE questions. All questions carry equal marks

1. a) What are master patterns? Explain? Discuss briefly the various functions of a pattern? 7 M

   b) Classify and discuss the various types of molding sand. What are the main factors which influence the selection of particular molding sand for a specific use? 7 M

2. a) Explain the principle of arc welding with neat diagram? Mention advantages and disadvantages of arc welding? 7 M

   b) What are the operations performed on a lathe? Explain with neat diagrams? 7 M

3. a) Explain in detail about power transmission in flat belts and crossed belts. 7 M

   b) What are the different types of gears? Explain with neat sketch the various aspects of helical gear. 7 M

4. Explain the working principle of Solar plant with neat Diagram. 14 M

5. a) What is COP? Explain applications of air conditioning? 7 M

b) Explain the principle and working of the vapour compression refrigeration system with neat diagram? 7 M

6. a) Describe the working of two stroke petrol engine with neat diagrams? 7 M

b) Describe the working of four stroke diesel engine with neat diagrams? 7 M

7. a) Draw stress strain diagram for the ductile and brittle material and compare them? Show the salient points on it 7 M

b) A bar of 100 mm diameter is subjected to a pull of 200KN. The measured extension on gauge length of 50mm is 0.4mm and change in diameter is 0.12mm calculate:
   a. Youngs modulus
   b. Poissons ratio and
   c. Bulk modulus 7 M

8. a) Explain in detail chemical properties of materials. 7 M

b) What is the importance of properties of materials in engineering? Explain? 7 M