PVP 14

Code: CE1T6

I B.Tech - I Semester – Regular/Supplementary Examinations
November 2018

BASIC MECHANICAL ENGINEERING
(CIVIL ENGINEERING)

Duration: 3 hours Max. Marks: 70

PART – A

Answer ***all*** the questions. All questions carry equal marks

11 x 2 = 22 M

1. a) Write any four desirable properties of moulding sand.

   b) Why pattern size is made bigger than actual casting?

   c) What is the principle of arc generation in arc welding?

   d) What is the function of connecting rod in IC engine?

   e) Write the principle of combustion in petrol engine.

   f) What is the purpose of compressor in vapour compression refrigeration system?

   g) What is unit of refrigeration?

   h) Define stiffness.

   i) Write a note on factor of safety.

   j) What is the purpose of cooling tower in steam power plant?

   k) Distinguish between open belt drive and cross belt drive.

PART – B

Answer any ***THREE*** questions. All questions carry equal marks.

3 x 16 = 48 M

2. a) What is casting? Illustrate the components of closed mould casting with a neat sketch. 10 M

   b) Write the features of soldering process. 6 M

3. a) List out the main components of IC engine. Explain the functions of (i) crank shaft and (ii) piston. 8 M

   b) Explain working of 2-stroke petrol engine with a neat diagram. 8 M

4. Draw the schematic diagram of summer air conditioning system and explain about its components. 16 M

5. a) A 25 mm diameter bar when subjected to a force of 40 kN has an extension of 0.10 mm on a gauge length of 200 mm. If the diametrical reduction is 0.005 mm, find the values of (i) Young'smodulus, (ii) Modulus of rigidity, (iii) Bulk modulus and (iv) Poisson's ratio. 10 M

   b) Write a note on electrical properties of materials. 6 M

6. a) Explain working principle of hydro electric power plant with the help of a block diagram. 10 M

b) List out types of gears. Write the industrial applications of (i) spur gears and (ii) bevel gears. 6 M