

Code: EC2T3

**I B.Tech - II Semester – Regular/Supplementary Examinations
April - 2019**

**ELEMENTS OF MECHANICAL ENGINEERING
(ELECTRONICS & COMMUNICATION ENGINEERING)**

Duration: 3 hours

Max. Marks: 70

PART – A

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

11x 2 = 22 M

1.

- a) State the principle of welding.
- b) What is soldering?
- c) What is the difference between stress and pressure?
- d) List some of the mechanical properties of a material.
- e) Define centre of gravity.
- f) Define parallel axis theorem.
- g) State the zeroth law of thermodynamics.
- h) What is reversibility?
- i) What is the component that converts reciprocating motion of the piston into rotating motion of the crank shaft?
Explain.
- j) What is the type of bearings used in IC engines, why?
- k) What is the function of the carburetor?

PART – B

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

$$3 \times 16 = 48 \text{ M}$$

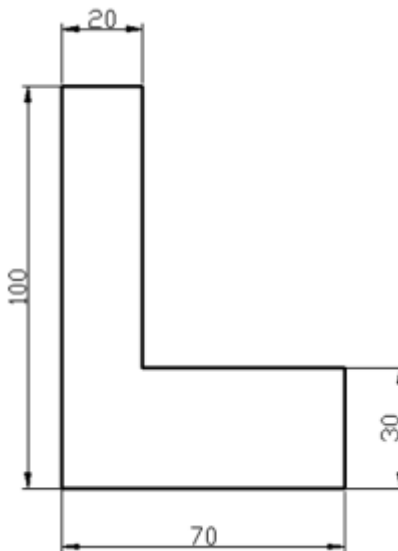
2. a) Explain the process of casting. 8 M

b) What are the properties of moulding sand? 8 M

3. a) State Hooke's law. Draw the stress – strain diagram for Mild steel and explain each stage of it. 8 M

b) Explain the relationship between Elastic moduli, Poisson's Ratio, volumetric & lateral strain. 8 M

4. Calculate the moment of inertia of the following about the axis parallel to the base and passing through the centre of gravity. 16 M



5. a) Explain the following terms with examples: 8 M
i) Energy ii) Heat
iii) Work iv) surroundings

b) Explain about 8 M
i) Reversibility and irreversibility
ii) Quasi static process

6. a) State the differences between petrol and diesel engines. 8 M

b) With the help of neat sketches explain the components of IC engine. 8 M