

GUJARAT TECHNOLOGICAL UNIVERSITY
BE SEMESTER 1 & 2 • EXAMINATION – SUMMER 2018

Subject Code:110006

Date: 19-05-2018

Subject Name: Elements of Mechanical Engineering

Time: 02:30 pm to 05:00 pm

Total Marks: 70

Instructions:

- 1. Attempt any five questions.**
- 2. Make suitable assumptions wherever necessary.**
- 3. Figures to the right indicate full marks.**

- Q.1** (a) (1) What is flow and non flow process? **07**
(2) Define:
(i) Sensible heat (ii) Enthalpy of evaporation (iii) Latent heat
(iv) Dryness fraction
- (b) Explain working of four stroke petrol engine with neat sketch. **07**
- Q.2** (a) (1) state the function of the following: **07**
(i) Pressure gauge (ii) Fusible plug
(2) Describe working of two stroke cycle petrol engine.
- (b) With neat sketch describe the construction and working of Cochran boiler. **07**
- Q.3** (a) (1) Give classification of governor. Explain any one with neat sketch. **07**
(2) Classify the centrifugal pump and explain vertex type centrifugal pump.
- (b) Classify the air compressor. Differentiate between reciprocating compressor and rotary compressor. **07**
- Q.4** (a) (1) What is refrigerant? State the most widely used refrigerant. **07**
(2) Explain vapour compression refrigeration cycle.
- (b) Explain with neat sketch split air conditioner. State its advantages. **07**
- Q.5** (a) (1) What is zeroth law of thermodynamics? **07**
(2) Explain working of disc clutch.
- (b) Write short note on all types of belt drive. **07**
- Q.6** (a) How prime movers are classified? Explain different sources of energy used by them. **07**
- (b) Which are common solid fuels? Write in brief about each of them. Define calorific value of fuel. **07**
- Q.7** (a) Write short note on the following materials: **07**
(i) Mild steel (ii) plywood (iii) fireclay
- (b) Explain in brief: **07**
(i) muff coupling (ii) band brake (iii) worm gear.
