Seat No.:	Enrolment No.

## **GUJARAT TECHNOLOGICAL UNIVERSITY**

**BE - SEMESTER-VII EXAMINATION - SUMMER 2016** 

Date:16/05/2016

Subject Code:170201

**Subject Name:** Automobile Air Conditioning System Time:02:30 PM to 05:00 PM **Total Marks: 70 Instructions:** 1. Attempt all questions. Make suitable assumptions wherever necessary. 3. Figures to the right indicate full marks. 07 **Q.1** (a) Define the following terms: (i) Dry bulb temperature (v) Air conditioning (ii) Relative humidity (vi) Psychrometry (iii) Wet bulb depression (vii) Sensible heat factor (iv) Dew point temperature (b) Explain Vapour compression refrigeration system with diagram. Compare it **07** with vapour absorption system. Explain following psychrometric processes: 07 **Q.2** i) Cooling and Humidification ii) Adiabatic mixing of two air streams Classify refrigerants. Give desirable properties of a good refrigerant. 07 OR Write a short note on eco friendly refrigerants. **07 Q.3** Classify Air conditioning systems. Explain Central air conditioning system with 07 (a) a suitable diagram. Discuss the effect of the factors affecting the load on air conditioning system of **07 (b)** an automobile. OR Explain effect of air conditioning load on engine performance in terms of loss 07 Q.3 of available Peak Torque/Power and Fuel consumption. List different faults and their remedies for compressors in air conditioning system. **07 Q.4** (a) Explain in brief: (1) Air conditioner relay (2) Thermostats 07 Describe different duct design methods. 07 OR 0.4 (a) Explain air distribution and extraction system. 07 Write a short note on refrigerated transport vehicle. 07 **(b)** 0.5 List various expansion devices used in air conditioning system. Explain any one 07 (a) of them with sketch. Write a short note on air routing and temperature control of air conditioning **07** system. OR Explain in brief Sources of noise in automobile system. **07** Q.5 (a) 07 Write a short note on refrigerant charging procedure. \*\*\*\*\*