

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII • EXAMINATION – WINTER • 2014****Subject Code: 170201****Date: 25-11-2014****Subject Name: Automobile Air Conditioning System****Time: 10:30 am - 01:00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1 (a)** Define the following terms: **07**
1. Air conditioning, 2. Psychrometry, 3. Dew point temperature, 4. Effective saturation, 5. Wet bulb temperature, 6. Sensible heat Factor, 7. Relative humidity
- (b)** With the help of schematic diagram, explain Vapour compression refrigeration system. How is it differed from Vapour absorption refrigeration? **07**
- Q.2 (a)** Explain following psychrometric processes: **07**
i) Cooling and humidification
ii) Adiabatic mixing of two air streams
- (b)** Classify refrigerants. List desirable properties of a good refrigerant. **07**
- OR**
- (b)** How the refrigerants are designated? List the names of refrigerants used in automobile air conditioning. **07**
- Q.3 (a)** Classify Air conditioning systems. Explain Central air conditioning system with a neat sketch. **07**
- (b)** Write a short note on refrigerant charging procedure. **07**
- OR**
- Q.3 (a)** Explain car air conditioning system with a neat sketch. **07**
- (b)** Write a short note on refrigerated transport vehicle. **07**
- Q.4 (a)** Discuss the effect of the factors affecting the load on air conditioning system of an automobile. **07**
- (b)** Write a short note on air routing and temperature control of air conditioning system. **07**
- OR**
- Q.4 (a)** Explain in brief layout of duct systems for automobiles and their impact on load calculations. **07**
- (b)** Discuss effect of air conditioning load on engine performance in terms of loss of available peak torque and fuel consumption. **07**
- Q.5 (a)** Explain in brief testing, diagnosis and trouble shooting of air conditioning system. **07**
- (b)** Explain in brief working of thermostats, control dampers and relays. **07**
- OR**
- Q.5 (a)** List different faults and their remedies for compressors in air conditioning system. **07**
- (b)** Discuss various sources of noise in air conditioning system. **07**
