

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**B. E. - SEMESTER – IV • EXAMINATION – WINTER 2012**

**Subject code: 140202****Date: 31/12/2012****Subject Name: Fundamental of Automobile Systems****Time: 02.30 pm - 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) Explain air suspension system with neat sketch **07**  
(b) List out different steering gears box and explain in brief rack and pinion steering gear system **07**

- Q.2** (a) Write short note **07**  
    i) Propeller shaft  
    ii) Semi floating axle  
(b) Differentiate between tubeless tyres and tyres with tube **07**

**OR**

- (b) Explain multi plate clutch with advantages and disadvantages. **07**

- Q.3** (a) Explain vacuum brakes with advantages and disadvantages **07**  
(b) Discuss different parameters affecting the performance of vehicles **07**

**OR**

- Q.3** (a) Write short note on **07**  
    i) Parking brakes  
    ii) Resistance during motion of vehicles  
(b) Discuss the functioning of internal expanding shoe brakes with sketch. **07**

- Q.4** (a) Explain constant mesh gear box **07**  
(b) Write short note on **07**  
    i) Torque converter  
    ii) Gear ratio

**OR**

- Q.4** (a) Name various components mounted on the chassis frame. What are the loads coming on a chassis frame? **07**  
(b) Differentiate automatic gear box and manual gear box **07**

- Q.5** (a) Explain front engine rear wheel drive vehicle layout with sketch **07**  
(b) List out merits and demerits of LPG **07**

**OR**

- Q.5** (a) Differentiate CI engine and SI engine **07**  
(b) Give detailed classification of automotive vehicle **07**

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