

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V • EXAMINATION – SUMMER 2013****Subject Code: 150202****Date: 16-05-2013****Subject Name: Automobile Systems****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) Explain with neat sketch the vehicle layout for Automobile of front engine rear wheel drive. **07**

(b) Define the following terms: **07**

- (i) Air resistance (ii) Gradiability (iii) Traction and Tractive effort.
(iv) Wheel skidding .

Q.2 (a) Explain with neat sketch the rear axle shaft supporting of 1. semi floating 2. full floating **07**

(b) Describe the construction and working of a single plate clutch with neat diagram and application. **07**

OR

(b) Describe the construction and working of a multi plate clutch with neat diagram and application. **07**

Q.3 (a) Explain synchromesh type of gear box. **07**

(b) What is the importance of differential in vehicle? Explain its working and construction with diagram. **07**

OR

Q.3 (a) Explain working of four forward and one reverse constant mesh gearbox with diagram. **07**

(b) Explain with neat sketch the automatic transmission. **07**

Q.4 (a) Classify steering systems. Explain with a neat sketch any one of the steering system. **07**

(b) Explain working and construction of master cylinder of hydraulic braking system with diagram. **07**

OR

Q.4 (a) Compare drum brake and disc brake for automobile **07**

(b) Explain the following terms with neat sketch: **07**
1. Caster 2. Camber 3. Slip angle 4. Toe in & Toe out

Q.5 (a) Name the different types of suspension spring. Explain Leaf spring. **07**

(b) Explain power steering. **07**

OR

Q.5 (a) Classify tyres and compare between tubeless and conventional tube tyres. **07**

(b) Explain with a neat sketch the hydraulic shock absorber **07**
