

GUJARAT TECHNOLOGICAL UNIVERSITY**B.E. Sem-Vth Examination December 2010****Subject code: 150202****Subject Name: Automobile Systems****Date: 15 /12 /2010****Time: 03.00 pm - 05.30 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) Describe the construction and working of a single plate clutch with a neat sketch. **07**
(b) Describe working of centrifugal clutch with a suitable diagram. **07**

- Q.2** (a) What is the requirement of a gear box? Explain "Gear ratio". What is the significance of high and low gear ratio? **07**
(b) Describe with a neat sketch the construction and working of a constant mesh gear box. **07**

OR

- (b) Explain various resistances acting on a vehicle in motion. **07**

- Q.3** (a) Explain with a neat sketch the working of a torque converter. **07**
(b) Explain with a neat sketch the automatic transmission. **07**

OR

- Q.3** (a) Classify the auto-vehicle brakes and explain with a neat sketch the working of hydraulic brake. **07**
(b) Draw and explain internal expanding brake. Describe lining materials and its properties. **07**

- Q.4** (a) What is the need of differential? Draw a neat sketch of differential and explain its working. **07**
(b) Draw and explain working of torque tube and hotch kiss drive. **07**

OR

- Q.4** (a) Classify tyres and explain with a neat sketch its tread patterns. **07**
(b) Write the difference between chassis, frame and body. Classify various chassis and explain any one of them. **07**

- Q.5** (a) Classify steering systems. What are the requirements of a good steering systems? Explain with a neat sketch any one of the steering system. **07**
(b) Draw and describe with respect to steering geometry (i) Camber (ii) Caster (iii) Toe-in (iv) Toe-out. **07**

OR

- Q.5** (a) Explain with a neat sketch the hydraulic shock absorber. **07**
(b) Classify auto vehicles and explain four wheel drive arrangement. **07**
