

GUJARAT TECHNOLOGICAL UNIVERSITY**B.E. Sem-IV Examination June- 2010****Subject code: 140202****Subject Name: Fundamentals of Automobile Systems****Date: 21 / 06 / 2010****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) Classify Automobiles by giving suitable examples. **04**
(b) Explain the working principle of four-stroke S.I engine with neat sketch. **05**
(c) Mention engines stationary and moving parts? Explain them in detail. **05**
- Q.2** (a) what are the functions of Gear box? Mention the types of manual gear box. **07**
(b) Explain the working of sliding mesh gear box with neat sketch. **07**
OR
(b) Explain the working of epicyclic gear box with neat sketch. **07**
- Q.3** (a) Explain the function of a centrifugal clutch with neat sketch. **07**
(b) Discuss Different types of resistances encountered by a moving vehicle. **07**
OR
- Q.3** (a) what are the functions of clutches? Explain the function of a multi plate clutch. **07**
(b) Explain the following **07**
(i) Gradeability of a vehicle (ii) Tractive effort.
(iii) Gear ratio (iv) Double declutching
- Q.4** (a) what are the basic requirements of brake fluid? Describe the bleeding of brakes. **07**
(b) Explain the hydraulic brake system with neat sketch. **07**
OR
- Q.4** (a) (i) what is final gear reduction and describe its need? **03**
(ii) Why propeller shaft is required in certain types of Automobiles? **04**
(b) Explain three quarter floating rear axle with neat sketch. **07**
- Q.5** (a) (i) Explain the tubeless tyre in details **03**
(ii) Explain the tread patterns of tyre. **04**
(b) What are the basic requirements of steering system? Mention the types of steering gear boxes and explain in detail any one type. **07**
OR
- Q.5** (a) Explain the following: **07**
(i) Camber (ii) Caster (iii) Kingpin inclination
(iv) Toe-in (v) Toe-out
(b) What are the types of suspension system? Explain the independent suspension system. **07**
