

GUJARAT TECHNOLOGICAL UNIVERSITY**B. E. Sem-IV Examination June- 2011****Subject code: 140202****Subject Name: Fundamentals of Automobile Systems****Date: 13/06/2011****Time: 10.30 am to 1:00 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) Draw a neat sketch showing all the moving parts of an Engine and explain working principle of four stroke Spark Ignition Engine. **07**

(b) Explain various types of suspension systems of a modern car. **07**

Q.2 (a) Explain classification of Vehicles along with examples. **07**

(b) Write functions of Automotive tyres and explain different types of tyres. **07**

OR

(b) (i) Explain Tubeless & Tube type Tyres. **05**

(ii) Explain with examples how the Tyres are designated. **02**

Q.3 (a) Explain in detail the difference between Spark Ignition (SI) Engine and Compression Ignition (CI) Engine. **07**

(b) Explain the characteristics of Engines based on various types of Fuels used in Automobiles. **07**

OR

Q.3 (a) Explain the functions of Propeller shaft and Differential assembly. **07**

(b) Explain the types of vehicular Chassis frame construction. **07**

Q.4 (a) Explain the difference between construction of Manual Type Gear box and Automatic Gear box. **07**

(b) What is an Epicyclic Gear box, describe its applications. **07**

OR

Q.4 (a) Draw a neat sketch and Explain in detail the working principle and operation of Torque convertor. **07**

(b) Explain the functions of clutch plate pressure plate and Fly wheel. **07**

Q.5 (a) Draw a neat sketch of internal expanding brakes and explain the components involved. **07**

(b) Explain the requirement steering system in automobiles and list the components of steering system of a Car. **07**

OR

Q.5 (a) Explain the following Terms and its importance in vehicular steering Geometry: **06**

(i) Camber

(ii) Caster

(iii) Toe in

(b) Explain following performance parameters of Vehicles: **08**

(i) Tractive Force

(ii) Gradeability

(iii) Power & Torque Characteristics of Engine

(iv) Exhaust Brake system

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