

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VIII (NEW) - EXAMINATION – SUMMER 2017

Subject Code: 2181915

Date: 04/05/2017

Subject Name: Automobile Engineering(Departmental Elective - III)

Time: 10:30 AM to 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.

MARKS

Q.1

Short Questions

14

The basic purpose of tyre rotation on automobiles is to

- 1 (a) Avoid ply separation
- (b) Equalize wear
- (c) Get better ride
- (d) None of these

- 2 Most modern automatic transmission have a drain plug in the oil pan.
True or False?

- 3 Which element creates reaction torque in a torque converter?

- 4 Give two functions of a leaf spring centre bolt.

- 5 Why should mixing of tyre types on one vehicle be avoided?

- 6 Why must hydraulic brake system parts be cleaned only in alcohol or other approved solvent?

The main function of the brake fluid is

- 7 (a) Lubrication
- (b) Power transmission
- (c) Cooling
- (d) None of these

- 8 Disc brakes are self-adjusting. True or False?

- 9 How is an analog speedometer driven?

- 10 Define: Starting System.

- 11 The pressure plate is bolted to the engine

In vehicles with tilt steering, the steering column is pivoted in

- 12 (a) Upper bracket
- (b) Steering yoke point
- (c) Lower bracket
- (d) Tilt bracket

- 13 Define: Ignition System.

The acid used in automobile battery is

- 14 (a) Hydrochloric acid
- (b) Hydrofluoric acid
- (c) Nitric acid
- (d) Sulphuric acid

Q.2

- (a) Explain rolling resistance, gradient resistance, and wind resistance.

03

- (b) What are the major units that make up an automobile chassis?

04

- (c) Explain with a neat sketch the working of a synchromesh type gear box used in automobiles.

07

OR

- (c) Explain the working of a single plate clutch with the help of a simple diagram. **07**
- Q.3** (a) What are the advantages of an automatic transmission? **03**
- (b) Give comparisons of front wheel drive and rear wheel drive in front engine mounted chassis. **04**
- (c) Explain various types of propeller shafts. Explain with neat sketch the working of two-piece propeller shafts. **07**

OR

- Q.3** (a) What are the three active members of a planetary gear set? **03**
- (b) What is the function of universal joints in power transmission? **04**
- (c) What is need of using a differential? Explain with a neat sketch construction and working of differential. **07**
- Q.4** (a) Explain principles of suspension system. **03**
- (b) Write notes on (i) Torsion bar, (ii) Helper spring. **04**
- (c) Classify various steering gears and explain with a neat sketch any one steering gear. **07**

OR

- Q.4** (a) What are the functions of steering in an automobile? **03**
- (b) Give detailed classification of automobile brakes. **04**
- (c) Draw a neat sketch and compare a disc brake and drum brake. **07**
- Q.5** (a) What are the advantages of light alloy casting wheels? **03**
- (b) Explain battery charging system. **04**
- (c) Write short note on factors affecting tyre wear. **07**

OR

- Q.5** (a) Write about hybrid vehicle and concept car. **03**
- (b) Explain construction and working of wiper. **04**
- (c) Draw a simplified wiring circuit for the lighting system of car and discuss the same. **07**
