

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-V (NEW) EXAMINATION – WINTER 2018****Subject Code:2150202****Date:16/11/2018****Subject Name:Automobile Systems****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.

- Q.1**
- (a) Classify automobiles according to different applications. **03**
- (b) Explain with neat sketch vehicle layout for front engine front wheel drive. **04**
- (c) Explain types of suspension system ? Explain the Mac Pherson strut type of independent suspension in detail. **07**

- Q.2**
- (a) Explain braking efficiency. **03**
- (b) Explain functions of automobile frame. Give comparison of conventional frame and frameless construction. **04**
- (c) Explain hydraulic braking system. Explain construction and working of Master cylinder with neat sketch. **07**

**OR**

- (c) Classify various types of brakes. Explain difference between drum brake and disc brake. **07**

- Q.3**
- (a) Explain the working of Continuously variable transmission. **03**
- (b) Explain Bleeding of Brake with neat sketch. **04**
- (c) Give the difference between automatic and manual transmission . Explain fluid flywheel. **07**

**OR**

- Q.3**
- (a) Define the following terms: **03**  
i) Over steer ii) Under steer iii) Cornering power
- (b) Explain working of torque converter with a neat sketch . **04**
- (c) What is steering geometry ? Define the different terms related to the steering geometry. **07**

- Q.4**
- (a) What is the requirement of propeller shaft ? Explain with neat sketch. **03**
- (b) Distinguish between semi floating and full floating rear axles with the aid of suitable sketches. **04**
- (c) Explain important of steering gearbox. Explain any two types of steering gear box with neat sketch. **07**

**OR**

- Q.4**
- (a) Explain the necessity of power steering in an automobile **03**
- (b) Explain final drive. Explain types of gear used in final drive mechanism. **04**
- (c) What do you mean by correct steering ? Write down the necessary condition for correct steering. **07**

- Q.5**
- (a) Define the following terms: **03**  
(i) Air resistance (ii) Gradiability (iii) Traction and Tractive effort.

- (b) Explain power required and engine characteristics of automobile. **04**
- (c) Which are the basic considerations for suspension system ? Explain in detail Telescopic type shock absorber. **07**

**OR**

- Q.5** (a) Explain the following terms in details. **03**  
(i) Over inflation (ii) Air bleeding (iii) Under inflation.
- (b) Briefly discuss about specification of tyres with example. **04**
- (c) Give the comparison between radial tyre and bias tyre. Explain tyre tread pattern with suitable sketch. **07**

\*\*\*\*\*