

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V (NEW) - EXAMINATION – SUMMER 2017****Subject Code: 2150202****Date: 01/05/2017****Subject Name: Automobile Systems****Time: 02:30 PM to 05:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

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|------------|---|---|
| Q.1 | Short Questions | 14 |
| | <ol style="list-style-type: none"> 1 Name components of vehicular powertrain 2 List down different types of vehicular frames 3 Mention purpose/function of suspension system 4 Name few clutch lining materials 5 Define:- Braking Efficiency 6 Explain disadvantages of CVT 7 Define:- Dead Axle 8 Name types of Rear Live Axles 9 Define:- Tractive Effort 10 Name different types of tyre tread patterns 11 What do you mean by steering wheel shimmy? 12 Define:- Tyre Aspect Ratio 13 List different types of car bodies 14 Define:- Draw bar pull | |
| Q.2 | (a) Explain various types of vehicle chassis in detail with neat sketch
(b) Explain four wheel drive layout in detail with neat sketch
(c) Describe Pneumatic suspension system with neat diagram | 03

04
07 |
| | OR | |
| | (c) Describe Hydro-Pneumatic suspension system with neat diagram | 07 |
| Q.3 | (a) Write a short note on Brake Bleeding with diagram
(b) Discuss:- (1) Coil springs (2) Torsion Bars
(c) Explain Vacuum Brakes with neat sketch | 03
04
07 |
| | OR | |
| Q.3 | (a) Draw a torque converter and write functions of each component.
(b) Explain Electro-magnetic clutch with neat sketch
(c) With neat sketch explain working and construction of fluid flywheel. State its advantages and disadvantages too. | 03
04
07 |
| Q.4 | (a) Define:- Toe, Camber & Caster
(b) Explain Ackermann steering in detail with neat sketch
(c) Explain power steering in detail with neat sketch & its advantages | 03
04
07 |
| | OR | |
| Q.4 | (a) Explain Hotchkiss and Torque-tube type rear axle drives with neat diagrams | 03 |

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|------------|-----|---|-----------|
| | (b) | Explain Propeller shaft in detail with a neat sketch | 04 |
| | (c) | Why do we require differential? Describe its construction and working with neat schematic diagram | 07 |
| Q.5 | (a) | Compare radial and Cross ply tyres | 03 |
| | (b) | Explain various types of wheel rims with neat sketch | 04 |
| | (c) | Explain hydro-static transmission systems in detail with neat sketch | 07 |
| OR | | | |
| Q.5 | (a) | Write a short note on tubeless tyres with diagram | 03 |
| | (b) | Describe power required for propulsion in detail | 04 |
| | (c) | Explain Continuous Variable Transmission (CVT) with neat sketch along with its advantages and disadvantages | 07 |
