

**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.

<b>Q.1</b>	<b>Short Questions</b>	<b>14</b>
	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	
<b>Q.2</b>	(a) Explain various types of vehicle chassis in detail with neat sketch	<b>03</b>
	(b) Explain four wheel drive layout in detail with neat sketch	<b>04</b>
	(c) Describe Pneumatic suspension system with neat diagram	<b>07</b>
	<b>OR</b>	
	(c) Describe Hydro-Pneumatic suspension system with neat diagram	<b>07</b>
<b>Q.3</b>	(a) Write a short note on Brake Bleeding with diagram	<b>03</b>
	(b) Discuss:- (1) Coil springs (2) Torsion Bars	<b>04</b>
	(c) Explain Vacuum Brakes with neat sketch	<b>07</b>
	<b>OR</b>	
<b>Q.3</b>	(a) Draw a torque converter and write functions of each component.	<b>03</b>
	(b) Explain Electro-magnetic clutch with neat sketch	<b>04</b>
	(c) With neat sketch explain working and construction of fluid flywheel. State its advantages and disadvantages too.	<b>07</b>
<b>Q.4</b>	(a) Define:- Toe, Camber & Caster	<b>03</b>
	(b) Explain Ackermann steering in detail with neat sketch	<b>04</b>
	(c) Explain power steering in detail with neat sketch & its advantages	<b>07</b>
	<b>OR</b>	
<b>Q.4</b>	(a) Explain Hotchkiss and Torque-tube type rear axle drives with neat diagrams	<b>03</b>

- (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**

\*\*\*\*\*