

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

**GUJARAT TECHNOLOGICAL UNIVERSITY**

**BE - SEMESTER-V(New) • EXAMINATION – WINTER 2016**

**Subject Code:2150202**

**Date:19/11/2016**

**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.

		<b>MARKS</b>
<b>Q.1</b>	<b>Short Questions</b>	<b>14</b>
	1 Write a different component of transmission line.	
	2 Define Gradeability.	
	3 Define Wheel skidding.	
	4 Write down the brake pad materials.	
	5 What is the function of timing belt?	
	6 Write down the parts of master cylinder.	
	7 Write the function of parking brake.	
	8 What is CVT?	
	9 What is the function of control valve in power steering?	
	10 What is the torque multiplication ratio in a torque converter?	
	11 What is the main function of the tread pattern on tyre?	
	12 What is the difference between DOT 3 and DOT 4 brake fluid?	
	13 What is the wheel base of a vehicle?	
	14 What is the ratio of driving tensions for flat belts?	
<b>Q.2</b>	(a) Write the main requirements of clutch.	<b>03</b>
	(b) Explain the following terms:	<b>04</b>
	(i) Caster	
	(ii) Camber	
	(iii) Toe in & Toe out	
	(iv) Slip angle	
	(c) Explain	<b>07</b>
	1. Wishbone independent suspension	
	2. Mac Pherson strut independent suspension	
	<b>OR</b>	
	(c) Describe with a neat sketch the automobile chassis.	<b>07</b>
<b>Q.3</b>	(a) Write the advantages of fluid flywheel.	<b>03</b>
	(b) Write the advantages and disadvantages of hydrostatic transmission over conventional sliding gear transmission.	<b>04</b>
	(c) Explain with a neat sketch the hydraulic shock absorber.	<b>07</b>
	<b>OR</b>	
<b>Q.3</b>	(a) What is the importance of differential in vehicle?	<b>03</b>
	(b) Explain leaf spring with a neat figure.	<b>04</b>
	(c) Classify steering systems. What are the requirements of good steering systems? Explain with a neat sketch any one of the steering system.	<b>07</b>
<b>Q.4</b>	(a) What is transfer box? Where it is used?	<b>03</b>
	(b) Explain the types of belts in brief.	<b>04</b>
	(c) Draw and explain internal expanding brake. Describe lining materials and its properties.	<b>07</b>
	<b>OR</b>	

- Q.4** (a) Write down the advantages and disadvantages of worm drives. **03**  
(b) Explain the difference between radial ply and bias ply tires. **04**  
(c) Explain construction, working and arrangement of sliding mesh gearbox with the help of neat sketch. **07**
- Q.5** (a) Explain the process “Bleeding in brakes” **03**  
(b) What is the principle of automatic transmission? Explain epicyclic gear box in brief. **04**  
(c) Explain with neat sketch the rear axle shaft supporting of 1. Semi floating 2. full floating **07**
- OR**
- Q.5** (a) Explain following term: **03**  
1. Traction and Tractive effort 2. Air resistance. 3. Wheel skidding
- (b) Explain condition for correct steering. **04**  
(c) Explain power required and engine characteristics of automobile. **07**

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