

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.

		MARKS
Q.1	Short Questions	14
	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?	
Q.2	(a) Write the main requirements of clutch.	03
	(b) Explain the following terms:	04
	(i) Caster	
	(ii) Camber	
	(iii) Toe in & Toe out	
	(iv) Slip angle	
	(c) Explain	07
	1. Wishbone independent suspension	
	2. Mac Pherson strut independent suspension	
	OR	
	(c) Describe with a neat sketch the automobile chassis.	07
Q.3	(a) Write the advantages of fluid flywheel.	03
	(b) Write the advantages and disadvantages of hydrostatic transmission over conventional sliding gear transmission.	04
	(c) Explain with a neat sketch the hydraulic shock absorber.	07
	OR	
Q.3	(a) What is the importance of differential in vehicle?	03
	(b) Explain leaf spring with a neat figure.	04
	(c) Classify steering systems. What are the requirements of good steering systems? Explain with a neat sketch any one of the steering system.	07
Q.4	(a) What is transfer box? Where it is used?	03
	(b) Explain the types of belts in brief.	04
	(c) Draw and explain internal expanding brake. Describe lining materials and its properties.	07
	OR	

- 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**
