

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V (NEW) EXAMINATION – SUMMER 2024****Subject Code:2150202****Date:23-05-2024****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.
4. Simple and non-programmable scientific calculators are allowed.

	MARKS
Q.1 (a) Explain Classification of Chassis.	03
(b) Write Different component of transmission line with figure.	04
(c) Explain functions of automobile frame. Give comparison of conventional frame and frameless construction.	07
Q.2 (a) Explain purpose of suspension system in automobile.	03
(b) Explain the types of belts in brief.	04
(c) Write short note on Continuously variable transmission.	07
OR	
(c) Explain the rear axle shaft supporting of 1.Semi floating 2. Three quarter floating.	07
Q.3 (a) What are the essential properties required of a clutch lining materials?	03
(b) Explain the following terms:	04
(i) Caster	
(ii) Camber	
(iii) Toe in & Toe out	
(iv) Slip angle	
(c) What is an independent suspension? Explain the Mac Pherson strut type of independent suspension in detail.	07
OR	
Q.3 (a) What is transfer box? Where it is used?	03
(b) Explain leaf spring with a neat figure.	04
(c) Draw and explain internal expanding brake. Describe lining materials and its properties.	07
Q.4 (a) Explain Propeller shaft in detail with a neat sketch.	03
(b) Explain use of gear box in automobile.	04
(c) Explain single plate clutch with neat sketch.	07
OR	
Q.4 (a) Write a short note on tubeless tyres with diagram.	03
(b) Explain following term;	04
1. Traction and Tractive effort 2. Air resistance.	
(c) Discuss Hotchkiss drive with neat sketch.	07
Q.5 (a) Draw a torque converter and write functions of each component.	03
(b) Explain Electro-magnetic clutch with neat sketch.	04

- (c) Why do we require differential? Describe its construction and working with neat schematic diagram. **07**

OR

- Q.5** (a) Explain the necessity of power steering in an automobile. **03**
(b) Explain various types of wheel rims with neat sketch. **04**
(c) Write a short note on fluid flywheel. **07**
