

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER– IV(NEW) EXAMINATION – SUMMER 2023****Subject Code:3140203****Date:07-07-2023****Subject Name:Basics of 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.
4. Simple and non-programmable scientific calculators are allowed.

		Marks
Q.1	(a) Classify the vehicles on the basis of engine location and drive and draw their neat layout.	03
	(b) Explain the design consideration for vehicle chassis.	04
	(c) Explain the general arrangement and working of electric transmission with neat sketch	07
Q.2	(a) Explain the requirements of gear box in brief.	03
	(b) Draw and explain the constant mesh gear box in short.	04
	(c) Explain the various resistances to motion and derive the expression for tractive effort.	07
	OR	
	(c) Explain construction and working of torque convertor with neat sketch.	07
Q.3	(a) Brief the limitation of electric drive for vehicles	03
	(b) Enlist various constant velocity joint and explain any one CV joint in short.	04
	(c) Enlist the problems in Transmission, identify the causes and suggest remedies.	07
	OR	
Q.3	(a) Explain the necessity of differential gear mechanism.	03
	(b) Explain the continuous variable transmission in short.	04
	(c) Explain the construction and working principle of propeller shaft with neat sketch.	07
Q.4	(a) Classify the vehicle braking system.	03
	(b) Explain the working of mac-person strut type suspension system.	04
	(c) Explain the working of limited slip differential system for vehicle.	07
	OR	
Q.4	(a) Explain any three problems in vehicle hydraulic braking system with their causes.	03
	(b) Explain the types of springs used in suspension system.	04
	(c) Explain the construction and working of hydraulic braking system in detail.	07
Q.5	(a) Differentiate between cross ply and radial tyre in vehicle.	03
	(b) Enlist types of steering gears and explain any one in short.	04
	(c) Explain the construction and working of shock absorber with neat sketch.	07
	OR	
Q.5	(a) Define : a) camber, b) caster, c) toe-out	03
	(b) Give any two tyre wear conditions and explain their causes in short.	04
	(c) Draw and explain the construction of tyre used in automobile vehicle.	07
