

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-IV (NEW) EXAMINATION – WINTER 2023****Subject Code:3140203****Date:11-01-2024****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) Compare front engine drive, rear wheel drive and Four wheel drive.	03
	(b) Give the comparisons of disc brake and drum brake.	04
	(c) Write a short note on Hydraulic braking system with neat sketch.	07
Q.2	(a) Define the following terms: (i) Air resistance (ii) Gradeability (iii) Traction and Tractive effort.	03
	(b) Explain the continuous variable transmission in short.	04
	(c) Explain Construction , Working, advantages and limitation of Electric drives used in Automobile.	07
	OR	
	(c) Explain Construction, Working and application of Differential with neat sketch.	07
Q.3	(a) Explain Adaptive suspension systems.	03
	(b) Explain Different types of material used in Vehicle Body Construction.	04
	(c) List down different types of Gear box. Explain any one of them with neat sketch.	07
	OR	
Q.3	(a) Application of Gearbox used in Automobile.	03
	(b) Explain fully floating rear axles with the aid of suitable sketch.	04
	(c) What do you mean by Steering ratio? Explain types of steering gears used in steering System.	07
Q.4	(a) Differentiate Hotchkiss drive and torque tube drive for rear axle drive.	03
	(b) What is unibody chassis? What are the advantages of unibody chassis?	04
	(c) Which are the basic considerations for suspension system? Explain in detail Telescopic type shock absorber.	07
	OR	
Q.4	(a) Why alignment is required in automobile?	03
	(b) Give the difference between automatic and manual transmission.	04
	(c) Explain Lubrication of transmission system. Write a short note on Torque convertors.	07
Q.5	(a) Define the different terms related to the steering geometry: (i) Camber, (ii) Caster, (iii) Toe Condition.	03
	(b) Explain Electro-hydraulic power-assisted steering.	04
	(c) Explain working of propeller shaft with suitable sketch and function of each Component of it.	07
	OR	
Q.5	(a) What are the effects of tyre pressure on tyre performance?	03
	(b) Differentiate between Tube tyre and tubeless tyre.	04
	(c) Write a short note on Antilock braking system and bleeding of brake.	07
