

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-VI (NEW) EXAMINATION – WINTER 2024

Subject Code:3161920

Date:05-12-2024

Subject Name:Automobile Engineering

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) Classify the automobile vehicles based on three criteria.	03
	(b) Write four functional requirements of vehicle body.	04
	(c) List various types of automobile layouts and its arrangement. For any one, write two advantages and two disadvantages with neat sketch.	07
Q.2	(a) Discuss various types of materials used in automobile body construction.	03
	(b) Write two advantages and two disadvantages of frameless construction of automobile vehicles.	04
	(c) Discuss different types of resistances acting on vehicles in motion.	07
	OR	
	(c) Explain the stability of a vehicle in motion around the curve.	07
Q.3	(a) State three faults and its diagnosis for hydraulic brake system.	03
	(b) Explain the working of multi plate clutch.	04
	(c) Describe construction and explain working of differential gear box.	07
	OR	
Q.3	(a) How automatic transmission works?	03
	(b) Define following terms related to braking of automobile: (i) braking distance (ii) braking efficiency (iii) weight transfer (iv) wheel skidding	04
	(c) Write types of manual gear boxes used in automobile vehicles and explain working of any one in detail.	07
Q.4	(a) List types of front and rear axles.	03
	(b) Draw four automobile tyre tread patterns.	04
	(c) Explain multi-leaf suspension system in details with neat sketch.	07
	OR	
Q.4	(a) Explain construction of tubeless tyre in brief.	03
	(b) Write four functional requirements of suspension systems in automobile vehicles.	04
	(c) Identity faults and its diagnosis of suspension and steering system.	07
Q.5	(a) How does hybrid vehicle start?	03
	(b) List four electronics components of modern automobile vehicle and state its use.	04

(c) Draw lighting circuit of automobile car with nomenclature. **07**

OR

Q.5 (a) Explain active safety measures in brief. **03**

(b) State the function of (i) fuel gauge (ii) wiper (iii) speedometer (iv) odometer. **04**

(c) Draw layout of electric vehicle, mention name of components and write use of every component. **07**
