

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V (NEW) EXAMINATION – SUMMER 2021****Subject Code:3152009****Date:17/09/2021****Subject Name:Automobile Engineering****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) What are the advantages of light alloy casting wheels?	03
	(b) Define the following terms: (i) Power steering (ii) Adjustable steering (iii) Collapsible steering (iv) Centre point steering.	04
	(c) What is hybrid vehicle? Explain the scope of development in Indian context.	07
Q.2	(a) What are the different safety provisions made in a modern car?	03
	(b) Explain the principle of a friction clutch.	04
	(c) Explain the single plate clutch with neat sketch.	07
OR		
	(c) Explain the working of conventional differential gear box with neat sketch.	07
Q.3	(a) What are the three active members of a planetary gear set?	03
	(b) What is the function of universal joints in power transmission?	04
	(c) Explain with neat sketch the working of a synchromesh type gear box used in automobiles.	07
OR		
Q.3	(a) Sketch arrangement of fully floating rear axle and identify various loads that it has to withstand.	03
	(b) Write about hybrid vehicle and concept of car.	04
	(c) Classify gear box? Explain working of constant mesh gear box with neat sketch.	07
Q.4	(a) With the neat sketch explain the working of a telescopic shock absorber.	03
	(b) Give detailed classification of automobile brakes.	04
	(c) Draw a neat sketch and compare a disc and drum brake.	07
OR		
Q.4	(a) Explain principles of suspension system.	03
	(b) Write note on (i) Helper spring (ii) Torsion bar.	04
	(c) What is Ackermann's principle? Explain in detail.	07
Q.5	(a) What are the functions of following accessories? (i) Fuel gauge (ii) Windscreen wiper (iii) odometer.	03
	(b) Write down difference between Battery ignition system and Magneto ignition system.	04
	(c) Explain with neat sketch the working of power assisted break.	07
OR		
Q.5	(a) Discuss in brief difference between SI Engine and CI Engine.	03
	(b) Explain battery charging system.	04
	(c) Explain ABS with neat sketch.	07
