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GUJARAT TECHNOLOGICAL UNIVERSITY
BE- SEMESTER–IV (NEW) EXAMINATION – WINTER 2020

Subject Code:3140203   **Date:09/02/2021**
Subject Name:Basics of Automobile Systems
Time:02:30 PM TO 04:30 PM   **Total Marks:56**

Instructions:
1. Attempt any FOUR questions out of EIGHT questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

			MARKS
Q.1	**(a)**	Draw layout of front engine four wheel drive and write advantages of it.	03
	(b)	Draw power transmission line for four wheel drive vehicle.	04
	(c)	Compare Front engine front wheel drive vehicle with Rear engine rear wheel drive vehicle based on any seven aspects.	07
Q.2	**(a)**	Define: Wheel base, Wheel track, Ground Clearance.	03
	(b)	Justify the need of suspension system in the vehicle.	04
	(c)	Explain MacPherson Strut type and Wishbone type suspension system with suitable sketch and application.	07
Q.3	**(a)**	Describe with a neat sketch the automobile chassis	03
	(b)	Explain leaf spring with a neat figure	04
	(c)	Enlist different types of automobile frames with suitable example. Compare their merits and demerits.	07
Q.4	**(a)**	What is transfer box? Where it is used?	03
	(b)	Explain Ackermann steering in detail with neat sketch	04
	(c)	Explain with suitable sketch the construction and working of master cylinder for hydraulic braking system.	07
Q.5	**(a)**	Explain bleeding of brake.	03
	(b)	Compare drum brake and disc brake.	04
	(c)	Explain pneumatic brakes with diagram.	07
Q.6	**(a)**	Why alignment is required in automobile?	03
	(b)	Explain wheel alignment.	04
	(c)	Explain 4 forward and 1 reverse sliding mesh gear box with neat sketch.	07
Q.7	**(a)**	Explain specification of tyre.	03
	(b)	What is the principle of automatic transmission? Explain epycyclic gear box in brief	04
	(c)	Explain working of propeller shaft with suitable sketch and function of each Component of it.	07
Q.8	**(a)**	Compare radial ply and bias ply tyre.	03
	(b)	Explain various resistances acting on a vehicle in motion.	04
	(c)	What is the importance of differential in vehicle? Explain its working and construction with diagram.	07

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