Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V (NEW) EXAMINATION – SUMMER 2019

Subject Code: 2150202 Date: 31/05/2019

Subject Name: Automobile Systems

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.**

Q.1	**(a)**	Draw the layout plan of automobile and name the various components.	**03**
	(b)	Compare front and rear mounting engine.	**04**
	(c)	Explain the various types of frame and give function of frame.	**07**
Q.2	**(a)**	Explain frameless construction.	**03**
	(b)	Give the brief classification of chassis of automobile vehicles.	**04**
	(c)	Explain different types of material used in automobile body construction	**07**
		Or	
	(c)	Write short note on torsional bar and helper spring.	**07**
Q.3	**(a)**	Define sprung mass and unsprung mass.	**03**
	(b)	Explain Macpherson strut type suspension system.	**04**
	(c)	Explain hydro-elastic suspension	**07**
		Or	
Q.3	**(a)**	Give the classification of brakes.	**03**
	(b)	Explain semi centrifugal clutch	**04**
	(c)	Give the comparisons of disc brake and drum brake.	**07**
Q.4	**(a)**	Give the comparison between multi plate and single plate clutches.	**03**
	(b)	Explain bleeding of brake.	**04**
	(c)	Explain construction and working principle of fluid flywheel. Also give the merits and demerits of it.	**07**
		Or	
Q.4	**(a)**	Why gear box is required in automobile vehicle.	**03**
	(b)	Explain radial ply tyre.	**04**
	(c)	What is the importance of differential in vehicle? Explain its working and construction with diagram.	**07**
Q.5	**(a)**	Explain tyre rating. What does 215/75 R 15 89T means.	**03**
	(b)	Explain following term; 1. Traction and tractive effort 2. Air resistance	**04**
	(c)	Explain power steering in detail with neat sketch & its advantages	**07**
		Or	
Q.5	**(a)**	Explain Hotchkiss and Torque-tube type rear axle drives with neat diagrams	**03**
	(b)	Explain Ackermann steering in detail with neat sketch	**04**
	(c)	Explain working of propeller shaft with suitable sketch and function of each Component of it.	**07**

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