## **GUJARAT TECHNOLOGICAL UNIVERSITY** BE - SEMESTER-IV • EXAMINATION – SUMMER • 2014

Sul Sul Tir	bject bject ne: 1	Code: 140202Date: 25-06-2014Name: Fundamental of Automobile SystemsTotal Marks: 70	
mst	1. 2. 3.	Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks.	
Q.1	(a)	Give function of following components of automobile vehicles: i. Engine ii. Flywheel iii. Clutch iv. Transmission v. Universal joints vi. Propeller shaft vii. Differential.	07
	(b)	List various vehicle layouts and explain any one of them.	07
Q.2	(a) (b)	Explain construction of chassis frame with figure. i. Why we do not use CNG conversion kit with diesel engine vehicles? ii. Classify automobile engines based on various aspects.	07 02 05
	( <b>b</b> )	i. Which are the basic sources of Bio-diesel?	02
	(~)	ii. Write advantages and limitations of Bio-diesel over petroleum diesel.	05
Q.3	(a)	Draw neat sketch of 3 forward and 1 reverse speed constant mesh gear box and explain how top and reverse gear are obtained.	07
	<b>(b</b> )	What are the functions of clutch? Classify automobile clutches.	07
Q.3	( <b>a</b> )	How automatic transmission works? Explain continuous variable transmission with neat sketch.	07
	( <b>b</b> )	Explain construction and working of any one type of clutch used in automobile vehicle with neat sketch.	07
Q.4	(a)	Define following terms related to performance of automobile vehicle: i. Air resistance ii. Road resistance iii. Grade resistance iv. Tractive effort	07
	<b>(b</b> )	Explain construction and working of internal expanding shoe brake with its layout sketch.	07
04	(a)	OR Draw layout of single line hydraulic braking system and explain its working	07
<b>V.</b> 4	( <b>a</b> )	principle.	07
	(b)	What is requirement of divided propeller shaft? Explain construction of various types of divided propeller shafts.	07
Q.5	<b>(a)</b>	Decode 10.00 G-20 for automobile wheel. Draw various tread patterns of	07
	(b)	What are the causes of following actions/conditions related to steering geometry on automobile vehicle performance?	07
		i. Camber ii. Caster iii. Toe-in and Toe-out iv. King-Pin inclination	
Q.5	(a) (b)	Explain construction of three-quarter-floating axle with figure. Write requirement of suspension system in automobile vehicles. Explain construction and working of McPherson strut suspension.	07 07

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