

P P SAVANI UNIVERSITY

Sixth Semester of B. Tech. Examination

December 2022

SEME3631 Automobile Engineering

07.12.2022, Wednesday

Time: 01:00 p.m. To 03:30 p.m.

Maximum Marks: 60

Instructions:

1. The question paper comprises of two sections.
2. Section I and II must be attempted in same answer sheet.
3. Make suitable assumptions and draw neat figures wherever required.
4. Use of scientific calculator is allowed.

SECTION - I

Q - 1	Answer the following questions (Attempt any three).	[03]	CO	BTL
(i)	Why gear box is necessary in an automobile?	1	1	2
(ii)	State at least one requirement of a good tyre.	4	1	1
(iii)	What is the function of brake?	2	1	1
(iv)	What is grade resistance?	1	1	1
Q - 2	Answer the following questions. (Any two)	[12]		
(i)	Draw and explain the layout of complete transmission system of an automobile.	3	3	
(ii)	With the help of neat sketch explain the working of disc brake.	2	3	
(iii)	Discuss various considerations for the design of tyre treads.	4	2	
Q - 3	Answer the following questions. (Any two)	[12]		
(i)	Give a detail classification of vehicle.	1	2	
(ii)	Which are the main components of an automobile? Describe all of them briefly.	1	2	
(iii)	List out the various types of CVT and explain metal push belt type CVT.	3	3	
Q - 4	Attempt anyone.	[03]		
(i)	Explain the construction and working of vacuum brake system.	2	3	
(ii)	Describe the construction of tyre with neat sketch.	4	3	

SECTION - II

Q - 1	Answer the following questions (Attempt any three).	[03]		
(i)	Explain the terms toe-in and toe-out.	6	3	
(ii)	Define: Under steer	6	3	
(iii)	Give the advantages of air suspension systems.	6	2	
(iv)	What is the purpose of steering linkages?	6	2	
Q - 2	Answer the following questions. (Any two)	[12]		
(i)	Enlist the electrical and electronics components of vehicle and explain any two in detail.	5	3	
(ii)	Explain in detail body electrical and electronics system.	5	3	
(iii)	Explain in detail Telescopic type shock absorber	6	3	
Q - 3	Answer the following questions. (Any two)	[12]		
(i)	Describe with neat sketch Ackerman steering system linkages.	6	3	
(ii)	What is an independent suspension? Explain the MacPherson strut type of independent suspension in detail.	6	3	
(iii)	Explain hydro pneumatic suspension system.	6	3	
Q - 4	Attempt anyone.	[03]		
(i)	Explain the working of power assisted steering with neat sketch.	5	3	
(ii)	Describe in brief Camber, Castor and steering axis inclination. What are the effects of each on steering characteristics of a vehicle?	6	4	

BTL : Blooms Taxonomy Level

Level of Bloom's Revised Taxonomy in Assessment

1: Remember	2: Understand	3: Apply
4: Analyze	5: Evaluate	6: Create