Reg. No.																

Question Paper Code	13949

B.E. / B.Tech. - DEGREE EXAMINATIONS, NOV / DEC 2025

Seventh Semester

Mechanical and Automation Engineering

20MUPE709 - AUTOMOBILE ENGINEERING

Regulations - 2020

Duration: 3 Hours | Max. Marks: 100

PART - A (MCQ) (10 × 1 = 10 Marks)

Answer ALL Questions

		Marks	K – Level	CO
1.	A complete vehicle without the body is known as the (a) Sub-assemble (b) Chassis (c) Body work (d) Frame	1	K1	CO1
2.	Which type of frame is most commonly used in passenger cars today? (a) Ladder frame (b) Back bone frame (c) Unibody (d) Perimeter frame	1	K1	CO1
3.	What is the primary function of the cooling system in an engine? (a) To increase engine power (b) To prevent the engine from overheating (c) To improve fuel economy (d) To improve exhaust emissions	1	K1	CO2
4.	In a modern common rail fuel injection system, how are the fuel injectors typically activated? (a) By a spring (b) By a solenoid valve (c) By a rotor (d) By an electric motor	1	K1	CO2
5.	What is the primary function of a clutch in a manual transmission system? (a) To multiply the engine torque (b) To allow the driver to change gears smoothly by connecting and disconnecting the engine from the gearbox (c) To transfer torque from the engine to the wheels at a fixed ratio (d) To reverse the direction of the vehicle's motion	1	K1	CO3
6.	The component in an automatic transmission that uses fluid to transmit torque from the engine to the gearbox is called the: (a) Flywheel (b) Driveshaft (c) Torque converter (d) Differential	1	K1	CO3
7.	The principle on which hydraulic brakes operate is: (a) Archimedes' principle (b) Newton's second law (c) Pascal's law (d) Bernoulli's principle	1	K1	CO4
8.	What is the primary purpose of a sway bar (or anti-roll bar) in a vehicle's suspension system? (a) To absorb road shocks and bumps (b) To reduce body roll during cornering (c) To control the up-and-down movement of the wheels (d) To adjust the vehicle's ride height	1	K1	CO4
9.	The energy that comes from the Earth's internal heat is known as: (a) Solar energy (b) Wind energy (c) Geothermal energy (d) Biomass energy	1	K1	CO5
10.	What is the process that combines hydrogen and oxygen in a fuel cell to produce electricity? (a) Nuclear fission (b) Combustion (c) Photosynthesis (d) Electrochemical reaction	1	K1	CO5

PART - B (12 × 2 = 24 Marks)

Answer ALL Questions

		Marks	K – Level	CO
11.	Difference between petrol engine and diesel engine.	2	K2	CO1
12.	How crank shaft usually made?	2	K1	CO1
13.	Mention the advantages of electronic ignition system using contact breaker.	2	K1	CO2
14.	State the functions of turbo chargers.	2	K1	CO2
15.	Define camber and caster.	2	K1	CO3

16.	What are the various universal joints in use?	2	K1	CO3
17.	How is shock absorber fitted in the vehicle?	2	K1	CO4
18.	What is wishbone?	2	K1	CO4
19.	Write down the components of LPG fuel flow.	2	K1	CO5
20.	Mention the type of fuel cell.	2	K1	CO5
21.	What is an include angle?	2	K1	CO4
22.	Give the advantages of electric vehicle.	2	K1	CO5

PART - C (6 × 11 = 66 Marks)

Answer ALL Questions

23.	a)	Explain with suitable sketches: valve timing diagram for SI engines.	11	K2	CO1
		OR			
	b)	Explain the classifications about IC engines.	11	K2	CO1
24.	a)	Sketch and explain the construction and operation of simple carburettor.	11	K2	CO2
		OR			
	b)	Discuss about EGR. Explain the system with suitable sketch.	11	K2	CO2
25.	a)	Construct and explain the working of cone clutch. Mention its advantages and disadvantages.	11	K3	CO3
		OR			
	b)	Validate the necessity of transmission in vehicle with suitable examples.	11	K3	CO3
26.	a)	Explain hydraulic brake with neat sketch and write its advantages.	11	K2	CO4
		OR			
	b)	Explain the functions of rear wheel suspension system.	11	K2	CO4
27.	a)	Derive the method of Bio-diesel manufacturing process and state its emission characteristics.	11	K2	CO5
		OR			
	b)	Write short notes about hybrid vehicle, express its principle and mention the main components of hybrid transmission.	11	K2	CO5
28.	a)	Discuss the various types of chassis used in automobiles with suitable diagram.	11	K2	CO1
		OR			
	b)	List out and explain the major IC Engine parts with materials and functions.	11	K2	CO1