		Module – 4			
Q.7	**a.**	Explain IC engine fuel types, extraction and its availability. Also analyze the energy sources sustainability.	**10**	**L2**	**CO3**
	b.	Analyze the different exhaust gas pollutants of a automobile and their effect on the environment.	**10**	**L3**	**CO3**
		OR			
Q.8	**a.**	Write short notes on solar powered vehicle. Also analyze the sustainability of the vehicle.	**10**	**L3**	**CO3**
	b.	Sketch and explain the working of hydrogen fuel cell vehicle. Also analyze the sustainability of hydrogen fuel cell production.	**10**	**L2**	**CO3**
		Module – 5			
Q.9	**a.**	Sketch and explain the working principle of two-wheeler electric vehicle. Also, discuss its battery life cycle management.	**10**	**L3**	**CO4**
	b.	Explain the construction and working principle of lead-acid batteries used in EV.	**10**	**L2**	**CO4**
		OR			
Q.10	**a.**	Sketch and explain the working principle of four wheeler electric vehicle. Also discuss its battery management system.	**10**	**L3**	**CO4**
	b.	Explain the construction and working principle of Nickel cadmium batteries used in the EV.	**10**	**L2**	**CO4**

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CBCS SCHEME

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18ME752

Seventh Semester B.E./B.Tech. Degree Examination, June/July 2025
Automotive Engineering

Time: 3 hrs. Max. Marks: 100

Note: *Answer any FIVE full questions, choosing ONE full question from each module.*

Module-1

1 a. List the components of automotive engine. Mention their functions and material used for manufacturing. (08 Marks)
b. Distinguish between dry-liner and wet-linear. (04 Marks)
c. What is swirl? Explain the different method of swirl generation. (08 Marks)

OR

2 a. What is the necessity of engine cooling? (04 Marks)
b. Sketch and explain thermosyphon system of engine cooling. (08 Marks)
c. Explain with a neat sketch the working of coolant pump. (08 Marks)

Module-2

3 a. What is the need of clutch in automobiles? (04 Marks)
b. Explain with a neat sketch the working of single plate clutch. (08 Marks)
c. Explain with a neat sketch the working of torque converter. Mention its advantages. (08 Marks)

OR

4 a. Explain with a neat sketch the working of hydraulic brake system. (08 Marks)
b. What is ABS? Mention its advantages. (06 Marks)
c. Explain with a neat sketch the working of wheel cylinder. (06 Marks)

Module-3

5 a. Define the following with sketch and explain their effect on steering.
i) Caster
ii) Camber
iii) King pin inclination
iv) Included angle. (08 Marks)
b. Explain with a neat sketch :
i) Worm and wheel steering gear
ii) Re-circulating ball type steering gear. (08 Marks)
c. Explain with a neat sketch torsion bar. (04 Marks)