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BME654D

Sixth Semester B.E./B.Tech. Degree Examination, June/July 2025
Modern Mobility

Time: 3 hrs. Max. Marks: 100

***Note:** 1. Answer any FIVE full questions, choosing ONE full question from each module.*
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	List the main components of Internal Combustion Engine. Briefly explain their function.	10	L2	CO1
	b.	Why cooling is necessary for I.C. Engine? Explain thermo-Syphon cooling system with neat sketch.	10	L2	CO2
		OR			
Q.2	a.	With neat sketch, explain the working of battery ignition system.	8	L2	CO2
	b.	Explain Splash lubrication system with neat sketch.	6	L2	CO2
	c.	Briefly explain with neat sketch for dry and wet liners.	6	L2	CO2
		Module – 2			
Q.3	a.	Explain multi-plate clutch with neat diagram.	10	L2	CO2
	b.	With neat sketch, explain the working of four speed synchromesh gear box.	10	L2	CO2
		OR			
Q.4	a.	Explain the working of Differential with neat sketch.	10	L2	CO2
	b.	Explain Radial and conventional tyres used in Automobiles. What are advantages and disadvantages of Tubeless tyres?	10	L2	CO2
		Module – 3			
Q.5	a.	Explain with neat diagram working of power steering and mention the advantages of power steering.	10	L2	CO2
	b.	Sketch and explain hydraulic braking system.	10	L2	CO2
		OR			
Q.6	a.	With a neat sketch, explain Air Suspension System. Mention its advantages and disadvantages.	10	L2	CO2
	b.	Explain with neat sketch Antilock Braking System (ABS).	6	L2	CO2
	c.	Differentiate between disc brake and drum brake.	4	L2	CO2

		Module – 4			
Q.7	**a.**	Explain gas pollutants of Automobile and their effects on environment.	**10**	**L2**	**CO3**
	b.	Write a short note on Emission Standards.	**5**	**L2**	**CO3**
	c.	Explain in brief about CNG vehicles and its advantages and disadvantages.	**5**	**L2**	**CO3**
		OR			
Q.8	**a.**	Explain with layout of electric hybrid vehicles, its operation and function of transmission and control system.	**10**	**L2**	**CO3**
	b.	Explain about I.C. Engine fuels and its advantages and disadvantages.	**10**	**L2**	**CO3**
		Module – 5			
Q.9	**a.**	What is the working principle of electric vehicles and explain the components of 4 wheeler vehicles with layout.	**10**	**L2**	**CO4**
	b.	What are the different types of motor used in electric vehicles? Explain the construction and working of any one.	**10**	**L2**	**CO4**
		OR			
Q.10	**a.**	What are types of batteries used in electric vehicles? Explain the construction and working of any two.	**10**	**L2**	**CO4**
	b.	What are requirements of battery charging of electric vehicles? How fire safety measures taken in Electric Vehicles.	**10**	**L2**	**CO4**

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