

# CBCS SCHEME



21ME54

## Fifth Semester B.E./B.Tech. Degree Examination, Dec.2024/Jan.2025 Modern Mobility and Automotive Mechanics

Time: 3 hrs.

Max. Marks: 100

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

### Module-1

- 1 a. Write a note on the history of Automobile. (10 Marks)
- b. Explain the main components of internal combustion engine, with neat sketch. (10 Marks)

OR

- 2 a. Explain the four main components of automobile. (10 Marks)
- b. Write notes on: (i) Hybrid engine (ii) Modern Gt engine (10 Marks)

### Module-2

- 3 a. With a neat sketch, explain the Cone Clutch in detail. (10 Marks)
- b. Write the five differences between Gear Shifting mechanism and automatic transmission. (10 Marks)

OR

- 4 a. Explain the leaf spring and coil spring with neat sketch. (10 Marks)
- b. Explain the requirement of good clutch and function of the clutch. (10 Marks)

### Module-3

- 5 a. Explain the Ackermann principle of steering with neat sketch. (10 Marks)
- b. With neat sketch explain Worm and Wheel Steering Gear, with neat sketch. (10 Marks)

OR

- 6 a. Explain in detail EPS (Electronic Power Steering). (10 Marks)
- b. Write the comparison between disc and drum brakes. (10 Marks)

### Module-4

- 7 a. Write a note on History of Emission Norms in India. (10 Marks)
- b. Explain the fuel quality standards of petrol and diesel. (10 Marks)

OR

- 8 a. What are the various environmental management systems for automotive vehicles? (10 Marks)
- b. Write a short note on Fuel Additives. (10 Marks)

### Module-5

- 9 a. Explain the Electrical Components of an EV system with block diagram. (10 Marks)
- b. With neat sketch, explain Front Wheel drive and rear wheel drive in EV vehicle. (10 Marks)

OR

- 10 a. Explain the working of lead acid battery with neat sketch. (10 Marks)
- b. Write a note on Battery Charging in EV system. (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.