



Fifth Semester B.E./B.Tech. Degree Examination, June/July 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. List and explain the classification of automobile according to following:
  - i) Capacity
  - ii) Body type
  - iii) Usage
  - iv) Power source (10 Marks)
- b. Explain the functions, material used and manufacturing methods for any 05 engine components. (10 Marks)

**OR**

- 2 a. Differentiate direct and indirect cooling. (10 Marks)
- b. With a neat sketch, explain battery ignition system. (10 Marks)

**Module-2**

- 3 a. Explain the working and construction of single plate clutch. (10 Marks)
- b. With a neat sketch, explain the working of torque converter. (10 Marks)

**OR**

- 4 a. Explain any two types of rear axle. (10 Marks)
- b. List and explain the construction and advantages of leaf spring. (10 Marks)

**Module-3**

- 5 a. Write a note on steering geometry. (10 Marks)
- b. With a neat sketch, explain the working of mechanical brakes. (10 Marks)

**OR**

- 6 a. Sketch and explain hydraulic braking system. (10 Marks)
- b. List and explain the safety measures in modern vehicles. (10 Marks)

**Module-4**

- 7 a. Briefly explain the exhaust gas pollutants and their effects on environment. (10 Marks)
- b. List the advantages and disadvantages of hydrogen fuel cell. (10 Marks)

**OR**

- 8 a. What are Bio-fuels? List and explain the steps involved in producing Bio-ethanol. (10 Marks)
- b. With a neat layout explain the various operating components of CNG vehicles. (10 Marks)

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.

**Module-5**

- 9 a. With a neat sketch, explain the working principle of electric vehicle for a 4-wheeler. (10 Marks)
- b. Differentiate electrical vehicles with conventional vehicles. (10 Marks)

**OR**

- 10 a. Sketch and explain the construction and working of lead acid battery. (10 Marks)
- b. Write a note on battery cooling and fire safety measures in battery vehicles. (10 Marks)

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