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## Fifth Semester B.E. Degree Examination, Dec.2023/Jan.2024 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 the components of Automotive Engine. Mention their function and materials used for manufacturing. (10 Marks)  
b. With neat sketch, explain the working of thermosymptom cooling system. (10 Marks)

OR

- 2 a. Explain dry sump lubrication system, with help of neat sketch. (10 Marks)  
b. Sketch and explain Electronic [Battery] Ignition system. (10 Marks)

### Module-2

- 3 a. With the help of neat sketch, explain Multi – Plate Clutch. (10 Marks)  
b. With neat sketch, explain Torque converter. (10 Marks)

OR

- 4 a. Explain with neat sketch about the working of synchromesh gear box. (10 Marks)  
b. With a neat sketch, explain the working principle of Air suspension system. (10 Marks)

### Module-3

- 5 a. What is Steering geometry? Define the following : i) Camber ii) Caster  
iii) King – pin inclination iv) Toe – in Toe - out. (10 Marks)  
b. What is ABS? Explain with appropriate sketch. (10 Marks)

OR

- 6 a. Explain the working of Power steering. (10 Marks)  
b. Explain about the safety terms : i) Air bags ii) Seat belt iii) Defogger and spoiler  
iv) Fire safety measures. (10 Marks)

### Module-4

- 7 a. What is Pollution? Explain the exhaust gas pollutants effects on Environment. (10 Marks)  
b. Explain about the IC engine fuels and its advantages and disadvantages. (10 Marks)

OR

- 8 a. What is CNG vehicles? Explain its operation , advantages and disadvantages. (10 Marks)  
b. With the layout of electric hybrid vehicles, explain its operation and function of transmission and control system. (10 Marks)

### Module-5

- 9 a. Explain the principle of Electric vehicles of 4 wheels. (10 Marks)  
b. What is Motor? Explain different types of motor and construction and working of any one. (10 Marks)

OR

- 10 a. Explain the construction and working of : i) lead batteries ii) sodium based batteries. (10 Marks)  
b. What re requirements of battery charging? How fire safety measuring in EV vehicles. (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.