CBCS SCHEME

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18AU754

Seventh Semester B.E. Degree Examination, Dec.2024/Jan.2025
Introduction to Electric Vehicle

Time: 3 hrs. Max. Marks: 100

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

Module-1

1 a. Discuss on the historical development of electric vehicle. **(08 Marks)**

b. Explain briefly the need of an electric drive. **(08 Marks)**

c. Write the major difference in an electric vehicle and the conventional IC engine vehicle. **(04 Marks)**

OR

2 a. Make a comprehensive discussion on the concept of EV's and key technologies. **(10 Marks)**

b. What are the major issues with electric vehicle? Discuss. **(10 Marks)**

Module-2

3 a. Explain the following components of a electric vehicle circuits and mention their functions.
i) Conductor ii) Insulators iii) Solenoids iv) Capacitors. **(10 Marks)**

b. Write the weight and size parameters under consideration while designing the electric vehicles. **(10 Marks)**

OR

4 a. Write the comparison between AC and DC motors. With suitable sketch, explain the working principle of DC motor. **(10 Marks)**

b. List out different EV parameters and explain. **(10 Marks)**

Module-3

5 a. Write the major components of a BOEV (Battery Operated Electric Vehicle) with a suitable block diagram. **(10 Marks)**

b. List the merits and demerits of BOEV. **(10 Marks)**

OR

6 a. What is the function of a flywheel? Explain how energy is stored using a flywheel. **(10 Marks)**

b. With a neat diagram, explain the regenerative braking system. **(10 Marks)**

Module-4

7 a. With neat sketch, explain the lead acid battery. **(10 Marks)**

b. Explain briefly the parameters of the battery of electric vehicles. **(10 Marks)**

OR

8 a. Describe the construction and working of Nickel Cadmium and Nickel metal hydride battery with neat sketch. **(10 Marks)**

b. Briefly explain the types of battery rating methods. **(10 Marks)**

Module-5

9 a. With a neat sketch the basic structure of a fuel cell explain its working, clearly stating the chemical reactions. **(10 Marks)**

b. Write a brief account of fuel cell characteristics. **(10 Marks)**

OR

10 Explain the following:

i) Solid oxide fuel cell

ii) Hydrogen storage system

iii) Reformers

iv) Fuel cell electric vehicle. **(20 Marks)**

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