



CBCS SCHEME

15AU662

Sixth Semester B.E. Degree Examination, June/July 2019 Hybrid and Electric Vehicles

Time: 3 hrs.

Max. Marks: 80

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

Module-1

- 1 a. Briefly explain the performance characteristics of road vehicles. (08 Marks)
b. Write a short note on grid connected vehicles. (08 Marks)

OR

- 2 a. Write a short note on : i) Series wound DC motors ii) Shunt wound DC motors. (08 Marks)
b. Explain compound wound DC motors with neat circuit diagram and also write the voltage and current equations. (08 Marks)

Module-2

- 3 a. With neat diagram explain brushless DC motors. (08 Marks)
b. Briefly explain the construction and working of switched reluctance motors. (08 Marks)

OR

- 4 a. With the neat diagram explain the working of Continuous Variable Transmission (CVT). (08 Marks)
b. Write a short note on : i) Mild hybrid ii) power assist. (08 Marks)

Module-3

- 5 a. Define : i) Launching ii) boosting. (08 Marks)
b. What do you mean by engine downsizing? How one can get benefits from that? (08 Marks)

OR

- 6 a. What are the different grade and cruise targets in hybrid power plants? (08 Marks)
b. What are the techniques to improve range and performance of hybrid vehicles? (08 Marks)

Module-4

- 7 a. Write a short note on matching of electrical drive and ICE. (08 Marks)
b. Explain the concept of 'sizing power electronics'. (08 Marks)

OR

- 8 a. What are the battery parameters? Explain each briefly. (08 Marks)
b. With neat diagram, explain the constructs and working of Lead – acid battery. (08 Marks)

Module-5

- 9 a. Write a short notes on : i) Proton exchange membrane ii) Alkaline fuel cell. (08 Marks)
b. Briefly explain fuel cell characteristics. (08 Marks)

OR

- 10 a. What are the different technologies used for hydrogen storage system. Explain one briefly. (08 Marks)
b. Write a short note on "Fuel cell electric vehicles". (08 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.