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18AU72

Seventh Semester B.E. Degree Examination, July/August 2022
Automotive Electrical and Electronic Systems

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. Explain earthed and insulated return system with the advantages of earth return system. (10 Marks)
b. Draw the diagrams of electrical symbols used in an automobile system. (10 Marks)

OR

- 2 a. Discuss the principle of operation of a lead acid battery with a neat sketch. (10 Marks)
b. Write short note of the following :
i) Battery rating
ii) Battery capacities
iii) Battery efficiency
iv) Battery testing. (10 Marks)

Module-2

- 3 a. With neat diagram, explain the construction and working of generator. (10 Marks)
b. Briefly explain the followings :
i) Armature and its slots
ii) Field magnets
iii) Commutation
iv) Generator brushes. (10 Marks)

OR

- 4 a. Describe the construction and working of stator motor with the help of a schematic diagram. (10 Marks)
b. With a neat sketch, explain the construction and working of standard Bendix Drive. (10 Marks)

Module-3

- 5 a. Discuss with the help of neat sketch the battery ignition system of the 4 – cylinder S.I engine. (10 Marks)
b. Give comparison between battery and magneto ignition system. (10 Marks)

OR

- 6 a. What are sealed beam headlights? Explain the methods of adjusting sealed beam head lights with neat sketch and state their advantages. (10 Marks)
b. With neat sketch, explain construction and working of wiper motor. (10 Marks)

Module-4

- 7 a. Explain series and parallel system in hybrid vehicle systems with help of a block diagram. Also state their advantages. (10 Marks)
b. Write a note on : i) Hybrid vehicles
ii) Fuel cells. (10 Marks)

OR

- 8 a. With the help of a circuit diagram explain central door locking and what are advantages. (10 Marks)
- b. Write a note on the following : (10 Marks)
- i) Air bags ii) Seat heaters.

Module-5

- 9 a. Explain electrical vehicle drive train components with neat diagram. (10 Marks)
- b. What are the advantages and disadvantages of hybrid electric vehicles? (06 Marks)
- c. Write down the difference between hybrid electric vehicle and electrical vehicles. (04 Marks)

OR

- 10 a. With neat sketch, explain the working principle of hall effect sensor. (10 Marks)
- b. Explain the working principle and applications of various light sensors. (06 Marks)
- c. Define IOT and write its applications. (04 Marks)
