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Seventh Semester B.E. Degree Examination, Feb./Mar. 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. With neat sketch, explain earthed and insulated return system. Mention its advantages and disadvantages. (10 Marks)
- b. Explain the following:
- 6 volts and 12 volts systems
 - Fusing of circuits
 - Low and High voltage automobile cables. (10 Marks)

OR

- 2 a. Describe the construction and working of lead acid battery with neat sketch. (10 Marks)
- b. Explain the different methods of battery testing. With neat sketch explain any two methods. (10 Marks)

Module-2

- 3 a. With the aid of neat sketch, describe the operation of combined voltage and current regulator with its principle. (10 Marks)
- b. Explain the construction, working of an alternator with neat sketch. (10 Marks)

OR

- 4 a. Mention the different types of starting motor drives. Explain any one type with neat sketch. (10 Marks)
- b. Explain battery motor starting system with neat sketch. Mention the consideration affecting the size of the motor. (10 Marks)

Module-3

- 5 a. With a neat sketch, explain the magnetic ignition system for an S.I. engine. Mention the advantages of it. (10 Marks)
- b. With the help of simplified diagram, explain the principle of an electronic ignition system.
- c. Discuss in detail about the pulse generator type of timers used in the system. (10 Marks)

OR

- 6 a. What are sealed beam head light? Explain the method of adjusting sealed beam headlight with sketch state its advantages. (10 Marks)
- b. Explain the following with neat sketch:
- Electric horn
 - Temperature gauge. (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-4

- 7 a. What is ignition timing? Explain the various timing device used to adjust the timing of an engine. (10 Marks)
- b. Write a short notes on:
- i) Hybrid vehicles
 - ii) Fuel cells
 - iii) Injection duration. (10 Marks)

OR

- 8 a. With neat sketch, explain the following:
- i) Electronic control of automatic transmission. (10 Marks)
 - ii) Central door locking. (10 Marks)
- b. Describe the construction and working of ABS. What are the disadvantages associated with them? (10 Marks)

Module-5

- 9 a. Explain the construction and working principle of sodium sulphur battery for electric vehicle with neat sketch. (10 Marks)
- b. i) List out the advantages and disadvantages of electric vehicles. (10 Marks)
- ii) Write short notes on HEV. (10 Marks)

OR

- 10 a. Define transducer. Explain the working principle of transducer used in Automobile and classify them. (10 Marks)
- b. Explain the following:
- i) Hall effect
 - ii) Proximity sensors. (10 Marks)
