

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/  
MANAGEMENT/COMMERCIAL PRACTICE, NOVEMBER – 2020**

**AUTOMOBILE ELECTRICAL AND ELECTRONIC SYSTEMS**

[Maximum Marks: 75]

[Time: 2.15 Hours]

**PART-A**

(Answer *any three* questions in one or two sentences. Each question carries 2 marks)

- I. 1. Define the term battery capacity.  
2. State “Motor Driving Torque” of Automobile Starter motor.  
3. List the classification of ignition coils by its construction.  
4. Define the term headlight dazzle.  
5. Identify the use of the ballast resistor fitted in the primary circuit of an ignition system.

(3 x 2 = 6)

**PART-B**

(Answer *any four* of the following questions. Each question carries 6 marks)

- II 1. Suggest any 6 points on care & maintenance of battery.  
2. Justify the use of motor drive mechanisms in starting system.  
3. Explain the need of spark advance & retard mechanisms.  
4. Explain any two “In-Car infotainment” systems.  
5. State any three types of battery ratings.  
6. Define armature reaction and explain 2 Generator output control methods.  
7. Summarize the application of “Autronic eye” with a diagram.

(4 x 6 = 24)

**PART-C**

(Answer *any of the three units* from the following. Each full question carries 15 marks)

**UNIT – I**

- III (a) Explain the construction of a lead acid battery with a sketch. (7)  
(b) Sketch and explain any 4 battery test. (8)

**OR**

- IV (a) Describe two battery charging methods with circuit diagrams. (7)  
(b) List 4 battery defects and explain their remedies. (8)

**UNIT – II**

- V (a) List 7 advantages of automobile alternators over DC generator. (7)  
(b) Explain the constructional details of Over running clutch type drive mechanism in starter motor, with sketch. (8)

**OR**

- VI (a) Describe the working of a cut-out relay used in charging system. (7)  
(b) Explain the constructional details of Pre engaged type drive mechanism in starter motor, with sketch. (8)

**UNIT- III**

- VII (a) Explain the working of Battery coil ignition system with a neat sketch. (7)  
(b) Explain the working of Electronic Ignition system in modern cars with a diagram. (8)

**OR**

- VIII (a) Label Spark plug and classify it according to heat range. (7)  
(b) Explain the working of Polar Inductance Magneto system. (8)

**UNIT - IV**

- IX (a) Explain the working of electric horn and label its parts. (7)  
(b) Describe the principle of operation of balancing coil type fuel gauge. (8)

**OR**

- X (a) Sketch and explain the operation of flexible rack type wind screen wiper mechanism. (7)  
(b) Explain the arrangements to be performed for head light alignment. (8)

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