



C20-A-306

7206

**BOARD DIPLOMA EXAMINATION, (C-20)
OCTOBER/NOVEMBER—2023
DAE – THIRD SEMESTER EXAMINATION**

AUTOMOBILE ELECTRICAL AND ELECTRONICS SYSTEMS

Time : 3 Hours]

[Total Marks : 80

PART—A

3×10=30

- Instructions :** (1) Answer **all** questions.
(2) Each question carries **three** marks.
(3) Answers should be brief and straight to the point and shall not exceed five simple sentences.

1. Write the laws of resistance.
2. Define self-induced EMF.
3. Three resistors of value 4 ohm, 6 ohm and 7 ohm respectively are connected in series to supply a voltage of 12 volt. Calculate the effective resistance.
4. Define (a) intrinsic semiconductor and (b) extrinsic semiconductor.
5. Draw the line diagram of P-N junction diode with forward bias and reverse bias.
6. What is a microcontroller?
7. What are the indications of fully charged battery?
8. List out the parts of coil ignition system.
9. What are the important parts of DC motor?
10. Write any three differences between Earth return wiring system and insulated return wiring system.

- Instructions :** (1) Answer **all** questions.
(2) Each question carries **eight** marks.
(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

11. (a) Explain physical and chemical changes noticed during charging and discharging of lead acid battery.

(OR)

(b) List various testing methods of lead acid battery and explain any two in detail.

12. (a) Explain the electronic ignition system with a neat sketch.

(OR)

(b) What are the requirements of spark plug? Explain briefly the constructional details of spark plug with a neat diagram.

13. (a) Explain the construction and working of Bendix drive with a neat diagram.

(OR)

(b) Explain the construction and working of Lucas drive with a neat diagram.

14. (a) Explain the constructional details of alternator with the help of suitable diagrams.

(OR)

(b) Explain the working principle of cut out in generating system with the help of neat diagram.

15. (a) Explain the working of cooling water temperature gauge with the help of neat diagram.

(OR)

(b) Explain the working of horn with the help of circuit diagram.

PART—C

10×1=10

- Instructions :** (1) Answer the following question.
(2) The question carries **ten** marks.
(3) Answer should be comprehensive and the criterion for valuation is the content but not the length of the answer.

16. Analyze and explain the wiring layout of two wheeler with a diagram.

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