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C20-M-303

7258

**BOARD DIPLOMA EXAMINATION, (C-20)
JUNE/JULY—2022**

DME - THIRD SEMESTER EXAMINATION

BASIC ELECTRICAL AND ELECTRONICS ENGINEERING

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. State the Ohm's law and units.
2. Define magnetic field strength, flux and reluctance.
3. List any three applications of DC motor.
4. Draw a legible sketch of DC welding generator.
5. List the types of earthing and its applications.
6. What are the essential torques of indicating instruments?
7. Define absolute and secondary instruments.
8. Define the electric shock.
9. Distinguish between intrinsic and extrinsic semiconductors in any three aspects.
10. Draw the circuit symbol and equivalent circuit for Zener diode.

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PART—B

8×5=40

- 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) Derive the expression power factor for R-L-C circuit connected in series across a single-phase AC source.

(OR)

- (b) Explain Kirchhoff's laws with legible sketch.

12. (a) Describe the any one method of speed control in a DC shunt motor.

(OR)

- (b) Describe the working principle of a transformer with legible sketch.

13. (a) Explain the construction and working of dynamometer type wattmeter.

(OR)

- (b) Explain the working of permanent magnet moving coil instrument.

14. (a) Explain the reasons and seriousness of the electric shock.

(OR)

- (b) Explain the procedures to be adopted to avoid electric shock.

15. (a) Explain the input and output characteristics of common emitter configuration.

(OR)

- (b) Describe the working of Zener diode.

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PART—C

10×1=10

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

16. Suggest and explain the earthing system used for a 25 HP electrical machine.

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