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C20-MET–302

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BOARD DIPLOMA EXAMINATION, (C-20)

OCTOBER/NOVEMBER—2023

DMET - 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. Define the terms flux, inductance and capacitance.

2. State Fleming's left hand rule.

3. List the types of DC motor.

4. Write any three applications of three-phase induction motors.

5. Classify the electrical measuring instruments.

6. Compare moving coil instruments with moving iron instruments in any three aspects.

7. Define electric shock.

8. State the need of earthing in electrical equipment and machinery.

9. What is a semiconductor?

10. Distinguish between intrinsic and extrinsic semiconductors in any three aspects.

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)* Define Ohm's law and state the laws of resistances.

(OR)

(b) State and explain dynamically induced EMF and statically induced EMF.

12. *(a)* Explain the construction and working of a single-phase transformer.

(OR)

(b) Explain the construction and working of single-phase induction motor.

13. *(a)* Explain the construction and working of moving coil measuring instrument.

(OR)

(b) Explain the construction and working of attraction type moving iron measuring instrument.

14. *(a)* Explain the procedures to be adapted to avoid electric shock.

(OR)

(b) Draw the pipe earthing diagram and label the parts.

15. *(a)* Classify semiconductors and also explain the formation of *PN* diode.

(OR)

(b) Explain the formation of *PNP* and *NPN* transistors.

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. Write the voltage and current equations of various types of DC generators.

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