C16-EC–106

6033

BOARD DIPLOMA EXAMINATION, (C-16)

MAY/JUNE—2023

DECE - FIRST YEAR EXAMINATION

ELEMENTS OF ELECTRICAL 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 coulomb's laws of magnetism.

2. State the Fleming's left hand rule.

3. Define absolute permittivity.

4. State electric field intensity.

5. Define the term impedance.

6. Define Q factor of a coil.

7. State the losses in a transformer.

8. Define regulation of a transformer.

9. List any three specifications of a motor.

10. Define slip of an induction motor.

PART—B

10×5=50

Instructions : (1) Answer *any* **five** questions.

(2) Each question carries **ten** marks.

(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

11. Explain the terms leakage flux and leakage co-efficient. 10

12. *(a)* Compare magnetic circuit with electric circuit. 5

(b) Explain electric potential and potential difference. 5

13. Find the equivalent capacitance of three capacitors 20 μF, 30 μF, and 60 μF which are connected *(a)* in series and *(b)* in parallel. 5+5

14. Explain the effect of AC flowing through pure capacitance with vector diagrams. 10

15. A series circuit having a resistance of 5 ohms an inductance of 40 mH and capacitance of 1000 μF are connected across 230 V, 50 Hz supply. Calculate *(a)* impedance, *(b)* current, *(c)* power factor and *(d)* power. 10

16. Explain the working of an auto transformer. 10

17. Compare DC series motor and DC shunt motor. 10

18. Explain the working principle of stepper motors. 10

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