



C16-EC-106

6033

BOARD DIPLOMA EXAMINATION, (C-16)

MARCH/APRIL—2017

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. Define magnetic flux and flux density. 1½+1½
2. Define leakage flux and leakage coefficient. 1½+1½
3. Define the terms 'absolute permittivity' and 'relative permittivity'. 1½+1½
4. Define the term 'electric field intensity'.
5. Define the terms (a) 'inductive reactance' and (b) 'impedance'. 1½+1½
6. Write about active and reactive components of AC current. 1½+1½
7. State the losses in transformer.
8. Define the regulation of a transformer.
9. Write about the condition for maximum power in DC motors.
10. List the applications of AC motors.

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**PART—B**

10×5=50

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

- 11.** (a) Explain dynamically and statically induced EMF. 6  
(b) State Fleming's right-hand rule. 4
- 12.** (a) Explain about Coulomb's law for magnetism. 5  
(b) Explain the terms 'electric potential' and 'potential difference'. 5
- 13.** (a) Find the equivalent capacitance of capacitors connected in series. 5  
(b) Calculate the energy given by 100 V power supply to two 100 F capacitors connected in parallel. 5
- 14.** Explain the effect of AC through pure capacitance. 10
- 15.** Explain the representation of vector by (a) symbolic notation and (b) trigonometric form. 5+5
- 16.** (a) Explain the working principle of autotransformer. 7  
(b) List the specifications of transformer. 3
- 17.** Explain the characteristics of DC series motor with neat diagrams. 10
- 18.** (a) Explain the working principle of stepper motor. 5  
(b) Explain the working principle of induction motor. 5

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