



C16-EC-106

6033

BOARD DIPLOMA EXAMINATION, (C-16)

OCTOBER—2020

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 absolute and relative permeability.
2. Define leakage flux and leakage co-efficient.
3. Define electrostatic field.
4. Compare electric field and magnetic field.
5. Define admittance and conductance.
6. Define active power and Q factor.
7. List the important parts of a transformer.
8. Define transformation ratio and regulation of a transformer.
9. Why starters are needed for DC motors?
10. Define slip and synchronous speed of an induction motor.

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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 criteria for valuation are the content but not the length of the answer.

- 11.** (a) Explain the dynamically and statically induced EMF. 5
(b) An iron ring with a mean diameter of 24 cm is wound with 40 turns to carry a current of 1.5 A. Calculate the magnetizing force. 5
- 12.** (a) Give the expression for energy stored in a capacitor. 5
(b) A coil having 100 turns links with a flux of 1 mWb. If the direction of this flux is reversed in 0.01 second, find the emf induced in the coil. 5
- 13.** (a) Give the expression for capacitance of a parallel plate capacitor. 4
(b) A capacitor stores 2 joules of energy when connected across 200 V DC voltage. Calculate its capacitance. 6
- 14.** (a) Explain the effect of AC through pure capacitance. 5
(b) A resistance of 9 ohms is connected in series with an inductive reactance of 12 ohms. The current in the circuit is 10 A. Find
(i) The voltage across the entire circuit 5
(ii) Draw the phasor diagram of the voltage and current.
- 15.** (a) Explain the effect of AC through pure resistance. 5
(b) Find the impedance for RL circuit. 5
- 16.** (a) Explain : 6
(i) Isolation transformer
(ii) Current transformer
(b) Why core is laminated? 4

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- 17.** (a) Explain the characteristics of DC shunt motor. 6
(b) Explain the important specifications of DC motors. 4
- 18.** (a) Explain the working principle of servo motors. 5
(b) Explain the working principle of capacitor start single phase induction motor. 5

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