



C16-M-305

6246

BOARD DIPLOMA EXAMINATION, (C-16)

OCT/NOV—2018

DME—THIRD SEMESTER EXAMINATION

BASIC ELECTRICAL ENGINEERING AND ELECTRONICS

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 self-inductance.
2. State Faraday's laws of electromagnetic induction.
3. Define (a) magnetic field strength, and (b) permeability.
4. Write the main function of the brush and disadvantages of carbon brushes in DC generator.
5. Define RMS value.
6. State any three applications of 3- induction motor.
7. Define (a) instantaneous value, (b) frequency, and (c) cycle.
8. Draw the symbol of PNP and NPN transistors.
9. Draw the connection diagram of 1- energy meter with load.
10. What is the need of earthing of electrical equipment?

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) Define capacitance and mention its units.
(b) Explain dynamically and statically induced EMF. 4+6=10
- 12.** (a) State and explain Fleming's right-hand rule.
(b) Two identical coils *A* and *B* having 500 turns lie side-by-side such that 50% of flux \vec{X} of 10^{-5} Wb in it. Find mutual inductance between two coils. \vec{X} by one coil links with the other. If a current of 5 A in a coil *A* produce a flux . 4+6=10
- 13.** (a) Draw the connection diagram of DC long shunt compound motor and state the relation between voltage and currents.
(b) Explain the significance of back e.m.f. in DC motor. 6+4=10
- 14.** (a) Draw the schematic diagrams for long shunt and short shunt of DC compound generator.
(b) A circuit consists of 10 resistance in series with a inductance of 100 mH. It is connected across 1- supply of 230 V, 50 Hz. Find impedance and current flowing through the circuit. 4+6=10
- 15.** (a) Explain the working of shaded pole 1- induction motor.
(b) Explain the star-delta starter with neat sketch. 5+5=10
- 16.** Explain the construction and working principle of an alternator. 10
- 17.** Draw and explain the input and output characteristics of common-base configuration. 10
- 18.** Explain the construction and working principle of dynamometer type wattmeter and give its applications. 10
