



C14-M-303

4251

**BOARD DIPLOMA EXAMINATION, (C-14)
MARCH/APRIL—2016
DME—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.

1. Define (a) magnetic field strength and (b) reluctance.
2. Define work, power and energy, and mention their units.
3. State Fleming's right hand rule.
4. Classify the DC generators on the basis of excitation.
5. Define (a) RMS value, and (b) form factor.
6. List any six applications of a 3-phase induction motor.
7. Define phase and phase difference.
8. Distinguish between intrinsic semiconductor and extrinsic semiconductor.
9. What are the effects of electric shock in a human body?
10. Compare moving coil instruments with moving iron instruments in any three aspects.

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PART—B

10×5=50

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

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

- 11.** Two lamps of ratings 100 W, 230 V and 250 W, 250 V are connected in parallel across a supply of 230 V. Calculate (a) the resistance of each lamp, (b) total current, (c) total power drawn from the supply and (d) the electrical energy taken from the supply in 10 hrs. 1×10=10
- 12.** (a) Explain dynamically induced EMF and statically induced EMF. 5
(b) Derive an expression for energy stored in a magnetic field. 5
- 13.** (a) Explain the significance of back EMF. 4
(b) Explain the speed control of DC series motor by field control methods. 6
- 14.** A coil of inductance 0.03 H is connected in series a resistance of 10 ohm and is connected across single phase 230 V, 50 Hz AC supply. Calculate (a) impedance, (b) current, (c) active power, (d) power factor and (e) voltage drop across inductance and resistance. 10
- 15.** (a) Explain the working principle of a transformer. 5
(b) Draw the circuit diagram for a capacitor start single-phase induction motor and explain briefly its working. 5
- 16.** (a) Explain the working of NPN transistor. 5
(b) Explain the operation of light emitting diode. 5
- 17.** Explain the construction and working principle of moving iron ammeter with a neat diagram. 10
- 18.** (a) Explain the working of Star-Delta Starter. 5
(b) List the losses take place in DC machine. 5
