



C16-M-305

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BOARD DIPLOMA EXAMINATION, (C-16)
MARCH/APRIL—2018
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.
(3) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. Define (a) magnetic flux and (b) flux density.
2. Define work, power and energy with their units.
3. State the functions of any two parts of a DC generator.
4. List out different types of DC motors.
5. State the relation between frequency and speed of an AC alternator.
6. State the advantages of poly-phase system over single-phase system.
7. List out types of single-phase induction motor.
8. Compare P-type and N-type semiconductors.
9. State the need of earthing of electrical equipment.
10. List the reasons for electric shock.

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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.** State and explain Kirchhoff's laws with examples. 10
- 12.** (a) Define (i) magnetic field strength and (ii) permeability with their units. 5
(b) Calculate the energy stored in a magnetic field of an air cored solenoid 1 meter long having a cross-sectional area of 0.05 m^2 , if it is carrying of 3 A. The number of turns of solenoid coil is 850. 5
- 13.** (a) Explain the working principle and operation of a DC motor. 5
(b) Sketch the connection of welding generator. 5
- 14.** (a) Draw the circuit diagrams and write voltage and current equations of (i) DC shunt generator and (ii) DC long shunt compound generator. 5
(b) An inductive circuit has a resistance of 5 Ω in series with an inductance of 0.03 H. Calculate the current and power factor, when connected across 230 V, 50 Hz supply. 5
- 15.** (a) List the applications of 1- induction motor. 5
(b) Define (i) RMS value and (ii) average value. 5
- 16.** Explain the constructional features of an alternator. 10
- 17.** Describe the operation of Zener diode with diagram. 10
- 18.** Describe the construction and working principle of dynamometer type wattmeter. 10
