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C14-M-303

4251

BOARD DIPLOMA EXAMINATION, (C-14)

OCT/NOV—2018

DME—THIRD SEMESTER EXAMINATION

BASIC ELECTRICAL AND ELECTRONICS ENGINEERING

Time : 3 hours]

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 work, power and energy.
2. Define permeability.
3. State the applications of DC motor.
4. State Kirchhoff's current law.
5. List the different types of 1- induction motor.
6. State the terms power factor of an AC circuit.
7. Derive the relation between frequency and speed of an alternator.

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8. Distinguish* between intrinsic and extrinsic semiconductors.
9. Draw the connection diagram of single-phase induction type energy meter.
10. State the procedure to be adopted in case of electric shocks.

PART—B

10×5=50

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

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

(3) The answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. (a) When a resistor of 10 Ω is connected across a supply of 25volts? Calculate the current flowing through the circuit, and power dissipated.
- (b) State the laws of resistance.
12. (a) Derive the expression for lifting power of a magnet.
- (b) If a coil of 1000 turns is linked with a flux of 2mWb, when carrying a current of 5 A, calculate Self-inductance of the coil.
13. Explain the speed control of DC motor by (a) Field control and (b) Armature control methods.
14. A resistance of 12 Ω and a capacitance of 130 μF are connected in series across a supply of 200V, 50Hz, calculate (a) the impedance, (b) current, (c) power factor and power consumed.
15. (a) List the parts of a DC Generator and mention the materials used for each part.
- (b) Explain polyphase system.

16. Explain the ^{*}constructional features 3phase squirrel cage Induction motor with a neat sketch.
17. Explain the formation of PN-junction diode.
18. Describe the procedure for pipe earthing with help of a neat sketch.

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