



C16-M-RAC-305

6246

BOARD DIPLOMA EXAMINATION, (C-16)

JANUARY/FEBRUARY—2022

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 work, power, and energy.
2. State Fleming' s right hand rule.
3. List out different types of DC motors.
4. Write the main parts of DC generator.
5. What are the applications of single phase induction motor?
6. Define R.M.S value in AC circuit.
7. Write formula for inductive reactance, capacitive reactance and Active power.
8. Classify materials with examples based on conductor.
9. What are the effects on human body due to electric shock?
10. Classify electrical measuring instruments.

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PART—B

- Instructions :** (1) Answer *any five* questions.
(2) Each question carries **ten** marks.
(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

- 11.** State and explain Kirchhof's laws with examples. 10
- 12.** (a) Derive an expression for energy stored in magnetic field. 5
(b) An immersed water heater has a resistance of 100 ohms and it is connected to 500V DC supply, calculate (a) Current, (b) Power and (c) Energy taken in 30 minutes. 5
- 13.** Explain the speed control of DC shunt motor by (a) field control method and (b) armature control method. 5+5=10
- 14.** (a) Explain the significance of back emf in DC motor. 5
(b) Draw the circuit diagram of Direct on line starter. 5
- 15.** Explain working principle of transformer with neat sketch. 10
- 16.** An AC circuit contains 10 ohms resistance and 30 ohms inductive reactance in series and this combination is connected across 150 V supply, find out (a) impedance, (b) current, (c) power factor and (d) average power in the circuit. 10
- 17.** Explain P-type and N-type semiconductors. 10
- 18.** Write the procedure of pipe earthing with neat diagram. 10

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