C14-MNG-302

4267

BOARD DIPLOMA EXAMINATION, (C-14)

MARCH / APRIL - 2019

DMNG - III 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) Answer should be brief and straight to the point and shall not exceed five simple sentences.

1 List any three applications of D.C. motors. **3**

2 Explain the necessity of starters. **3**

3 Derive an equation for impedance of a series R-L-C circuit when $X_C > X_L$. **3**

4 A circuit with 6 Ω is connected in sereis with a capacitor. If a current of 10A is flowing through the circuit when it is connected to 200V; 50 Hz Supply, then find the capacitance value. **3**

5 List any three maintenance aspects of Transformer. **3**

6 Compare Core type transformer and Shell type transformer in any three aspects. **3**

7 Classify three-phase induction motors. **3**

8 State applications of three phase induction motors with respect to mining industry **3**

9 Write the electrical properties of solid semi-conductor materials. **3**

10 Write any three applications of LED. **3**

PART - B 10×5=50

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

11 (a) List the parts of a DC generator and write function of each part. **5**

(b) Derive E.M.F. equation of D.C Generator. **5**

12 (a) Explain the principle of operation of a DC motor. **5**

(b) Draw 3 point starter with neat sketch. **5**

13 If the alternating quantity of current $25\sin 314t$ is flowing in a circuit then, find the values of **2+2+2+2+2**

(a) Frequency (b) RMS value (c) Average value (d) Crest factor (e) Form factor.

14 (a) Explain operation of Transformer at ON-LOAD Condition. **5**

(b) Explain maintenance of transformer. **5**

15 (a) Explain the Direct online starter with a neat sketch. **5**

(b) State the application of single phase Induction motors. **5**

16 Explain the construction and working principle of A.C. Single phase induction type energy meter. **10**

17 Explain the formation of P-Type and N-Type materials. **10**

18 Explain forward and reverse bias voltage characteristics of a diode with neat sketches. **10**
