C09-M/CHST-**304**

3248

BOARD DIPLOMA EXAMINATION, (C-09)

MARCH / APRIL - 2019

DME - III SEMESTER EXAMINATION

ELECTRICAL ENGINEERING AND BASIC ELECTRONICS

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.

1 State Fleming's right hand rule.

2 State Ohm's Law.

3 Define electric field intensity.

4 State any three applications of a DC compound motor.

5 List the types of self-excited D.C. Generator.

6 State how the direction of rotation of capacitor start 1-phase induction motor can be reversed.

7 Define RMS value.

8 Compare lead-acid and nickel iron cells in any three aspects.

9 Write the majority and minority charge carriers in P&N type materials.

10 State the working principle of moving iron instrument.

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) Define Permeability. **4**
(b) State and explain Kirchhoff's laws. 6

12 A DC long shunt compound motor takes a current of 30A from a 230 V DC supply. Its armature, series field and shunt field resistances are 0.06Ω, 0.08Ω and 115Ω respectively. Calculate the back e.m.f. of the motor.

13 Explain the working of DOL starter with a legible sketch.

14 (a) Draw a legible sketch of welding transformer. **5**
(b) Explain principle of working of an alternator. **5**

15 (a) Explain the operation of LED. **5**
(b) Explain the operation of zener diode. **5**

16 (a) Explain the purpose of earthing of the electrical equipment and electrical machinery. **5**
(b) Explain the effect of Electric shock and burn. **5**

17 (a) Define : $2\frac{1}{2}+2\frac{1}{2}$
(1) Self inductance
(2) Mutual inductance.
Give their expressions.
(b) Draw the power flow diagram of a D.C. generator. **5**

18 (a) State the expression for power 1-phase A.C. circuit and also define power factor.
(b) Explain the constant current method of charging the barriers.