

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/  
MANAGEMENT/COMMERCIAL PRACTICE — OCTOBER, 2017

**ELECTRICAL AND ELECTRONICS ENGINEERING**

[Time : 3 hours

(Maximum marks : 100)

**PART — A**

(Maximum marks : 10)

Marks

I Answer all questions in one or two sentences. Each question carries 2 marks.

1. Give the relation between phase voltage and line voltage and phase current and line current in 3 phase star connection.
2. Define watt hour efficiency of a lead acid cell.
3. Which type of A.C. motor is used in the ceiling fan ?
4. State the equation for power in 3 phase AC two wattmeter method.
5. List any two industrial application of SCR.

(5×2 = 10)

**PART — B**

(Maximum marks : 30)

II Answer *any five* of the following questions.. Each question carries 6 marks.

1. Illustrate Fleming's right hand rule.
2. Describe the terms in AC circuits :  
(i) average value      (ii) RMS value      (iii) form factor
3. Draw three points starter and mark necessary parts.
4. Derive the emf equation of a transformer.
5. Explain the principle of dielectric heating.
6. Enumerate the advantages of universal gates and give their symbols.
7. Compare NPN and PNP transistors.

(5×6 = 30)

PART— C  
(Maximum marks : 60)

(Answer *one* full question from each unit. Each full question carries 15 marks.)

UNIT — I

- III (a) Explain the classification of D.C. generators based on field connection. 8  
(b) A heating coil has a resistance of 30 Ohm and takes 8A current. Find the applied voltage, power of the coil and energy consumption for 4 hours. 7

OR

- IV (a) Explain the constructional details of 3 phase Alternator. 8  
(b) Describe the methods of charging of lead acid cell. 7

UNIT — II

- V (a) Explain the working principle of single phase induction motor. 8  
(b) Draw and explain DOL starter. 7

OR

- VI (a) Explain the working principle of Auto transformer. 8  
(b) Differentiate the welding transformer and power transformer. 7

UNIT — III

- VII (a) Explain the constructional details of moving iron instrument. 8  
(b) State the principle of heat production from electric power. 7

OR

- VIII (a) Explain the constructional details of moving coil instrument. 8  
(b) List the various industrial application of electric heating. 7

UNIT — IV

- IX (a) Describe the working of full wave rectifier using four diodes with neat circuit diagram. 8  
(b) Explain working of silicon controlled rectifier. 7

OR

- X (a) List different types of capacitors and explain. 8  
(b) Explain about the basic block diagram of control system with neat sketch. 7

97