

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/
MANAGEMENT/COMMERCIAL PRACTICE — OCTOBER, 2018**

ELECTRICAL & 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. Define R. M. S. value of an alternating quantity.
2. Write the expression for efficiency of a Lead acid cell.
3. List two applications of DC series motor.
4. What is the fundamental principle of electric heating ?
5. Draw the symbols of universal digital gates.

(5×2 = 10)

PART — B

(Maximum marks : 30)

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

1. Explain the characteristics of a parallel electric circuit.
2. Draw 3Φ star and delta connections with line & phase voltages & currents.
3. Explain the necessity of starter in a DC motor.
4. Classify transformers based on functions and construction.
5. Compare Moving Iron and Moving Coil indicating instruments.
6. List some of the applications and advantages of induction heating.
7. What are the different active and passive electronic components ?

(5×6 = 30)

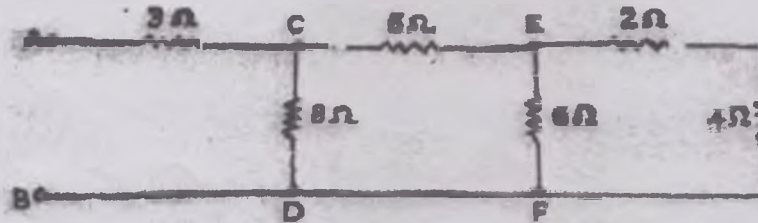
PART — C

(Maximum marks : 60)

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

UNIT — I

- III (a) Find the total current in the given circuit. Also find the potential difference across 8Ω and 6Ω resistors, if the circuit is supplied with 21 V DC supply. 7



- (b) Explain the constructional details of a DC generator.

OR

- IV (a) Derive the expression for the impedance in an AC series R-L circuit. 6
 (b) Describe the constructional details of a 3-phase alternator with sketches. 9

UNIT — II

- V (a) Explain the principle and operation of a DC motor. 7
 (b) What is a DOL starter ? Draw and explain. 8

OR

- VI (a) Derive the e.m.f. equation of a transformer. 7
 (b) Explain the working principle of a 3-phase induction motor. 8

UNIT — III

- VII (a) Explain principle and working of PMMC indicating instrument. 8
 (b) Describe the working of an electric Arc furnace. 7

OR

- VIII (a) Describe the attraction type MI instrument with diagram. 8
 (b) What is dielectric heating ? 7

UNIT — IV

- IX (a) Explain the modes of operation of a SCR. 8
 (b) What are the advantages of automation ? 7

OR

- X (a) Draw the three basic configurations of BJT. State two uses of BJT. 8
 (b) Which are the universal digital gates ? Explain each with diagram and truth table. 7