

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/
COMMERCIAL PRACTICE, APRIL-2022**

ELECTRICAL & ELECTRONICS ENGINEERING

[Maximum marks: 100]

(Time: 3 Hours)

PART – A

Maximum marks : 10

I (Answer *all* the questions in one or two sentences. Each question carries 2 marks)

1. State Fleming's right hand rule.
2. List 2 applications of DC motor.
3. List two advantages of moving coil instrument over moving iron instrument.
4. Draw the logic symbol of NAND gate.
5. State the principle of induction heating from electric power. (5 x 2 = 10)

PART – B

Maximum marks : 30

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

1. Distinguish between single phase and three phase system.
2. Describe the principle of working of DC Motors.
3. Describe the working principle of dynamometer types wattmeter.
4. Explain the working of full wave rectifier using four diodes.
5. Explain the classification of DC. generators based on field connection.
6. Justify the necessity for a starter in motors.
7. Explain 3 advantages of universal gates. (5 x 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 working of single loop AC generator with a diagram. (7)
- (b) Sketch and explain the constructional details of lead acid battery. (8)

OR

- IV.(a) Explain the constructional details of a DC generator with diagram. (7)
(b) Sketch and explain the constructional details of 3 phase Alternator. (8)

UNIT-II

- V. (a) Illustrate the working principle of 3 phase induction motor. (7)
(b) Draw the connection and explain the working of 3 point starter. (8)

OR

- VI. (a) Explain the constructional details of single phase induction motor. (7)
(b) Classify the transformers based on function and construction. (8)

UNIT-III

- VII. (a) Explain the constructional details of Moving Iron instruments with a diagram. (7)
(b) List and explain 8 industrial applications of electric heating. (8)

OR

- VIII. (a) Explain the constructional details of Moving Coil instruments with a diagram. (7)
(b) List 4 functions each of induction furnace and Arc furnace. (8)

UNIT-IV

- IX. (a) Explain working principle of BJT with a diagram. (7)
(b) Draw the basic block diagram and explain the closed loop control system. (8)

OR

- X. (a) Explain the working principle of SCR with a diagram. (7)
(b) List 8 applications of control system. (8)
