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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/ COMMERCIAL PRACTICE, APRIL - 2025

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. Define the term power factor.

2. Define percentage slip.

3. State the equation for power in 3 phase AC two wattmeter method.

4. Name two applications of dielectric heating.

5. List any two types of capacitors.   (5 x 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 parallel electric circuits.

2. Compute line voltage and phase voltage, line current and phase current in Delta connection.

3. Explain the working principle of a single phase transformer.

4. List the various applications of D.C motor.

5. State the principle of heat production from electric power.

6. What are the different active and passive electronic components?

7. Describe the 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 classification of DC generators based on field connection.   (8)

         (b) Explain the difference between star and delta connection.   (7)

OR

IV. (a) Describe the terms related to AC circuits such as Waveform, Cycle, Frequency, Time period. (8)

    (b) Describe the working of lead acid cells. (7)

UNIT – II

V. (a) Classify the transformers based on function and construction. (8)

    (b) Explain the working of a star-delta starter. (7)

OR

VI. (a) Differentiate the welding transformer and power transformer. (8)

    (b) Explain the working principle of a single phase induction motor. (7)

UNIT - III

VII. (a) Explain the constructional details of Moving Coil instruments. (8)

    (b) Explain the principle of induction heating. (7)

OR

VIII. (a) Explain the power measurement in a three phase AC system by two wattmeter methods. (8)

    (b) List the various advantages of electric heating. (7)

UNIT – IV

IX. (a) Explain the application of BJT. (8)

    (b) Draw the basic block diagram of the control system. (7)

OR

X. (a) Explain the working principle of an NPN transistor. (8)

    (b) Explain the application of the control system. (7)