DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/
COMMERCIAL PRACTICE –NOVEMBER -2021.

ELECTRICAL TECHNOLOGY

(Maximum Marks : 75)   [Time : 2.15 hours]

PART–A

Marks

I. Answer **any three** questions in one or two sentences. Each question carries 2 marks.

1. Define R M S value of an alternating quantity.

2. State the purpose of earthing.

3. Define Thevenins theorem.

4. Give the equation for back emf of a DC motor.

5. Mention the two types of rotor employed in alternator.   (3x2=6)

PART - B

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

1.   Derive an equation for impedance in R-L series circuit.

2. Describe the pipe earthing.

3. State and explain the Kirchhoff's law.

4. Derive an equation for EMF of a transformer.

5. Define armature reaction and give its effects.

6. Give the relation between synchronous speed and frequency of an AC machine.

7. Explain the working principle of universal motor.   [4x6 =24]

PART - C

(Answer **any of the three units** from the following. Each full question carries 15 marks)

UNIT I

III   (a) Define the following terms.

(i)Form factor   (ii)Crest factor   (iii) (8) Power factor   (iv)Average value   (8)

(b)   Derive a formula for impedance in R-C series circuit.   (7)

OR

IV (a) A resistance of 17.32Ω is connected in series with a pure inductance of 31.8mH and the circuit is connected to a 200V 50Hz supply. Determine (i)Impedance (ii)circuit current (iii)Active power (iv)Voltage across resistor. (8)

(b) With aid of a neat sketch describe the working principle of a megger. (7)

UNIT- II

V (a) State and explain superposition theorem. (8)

(b) Describe the constructional details of a transformer. (7)

OR

VI (a) Mention the types of transformers employed generally in electronic circuit. (8)

(b) Write down the losses occurs in a transformer. (7)

UNIT- III

VII (a) Describe the classification of DC generators according to field connection. (8)

(b) A4 pole wave wound DC generator has 600 armature conductors and flux per pole is 0.015 wb. If the machine is runs at 1200 rpm calculate the generated emf. (7)

OR

VIII (a) With the aid of a neat sketch explain the working principle of a 3-point starter. (8)

(b) Mention the significance of back emf in a DC motor. (7)

UNIT – IV

IX (a) Describe the working principle of an alternator. (8)

(b) Explain the working of a stepper motor in detail. (7)

OR

X (a) Derive an equation for EMF of an alternator. (8)

(b) Write down the working principle of 3Φ induction motor. (7)

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