6013

C16-AEI–106

# 6013

## BOARD DIPLOMA EXAMINATION, (C-16)

## JUNE/JULY—2022

## DAEIE – FIRST YEAR EXAMINATION

BASIC ELECTRICAL ENGINEERING

*Time* : 3 hours ] [ *Total Marks* : 80

## PART—A

3×10=30

**Instructions :** (1) Answer **all** questions.

(2) Each question carries **three** marks.

(3) Answers should be brief and straight to the point and shall not exceed five simple sentences.

**1.** Differentiate between active and passive circuits.

**2.** Define ideal voltage source.

**3.** Define 'Q' factor.

**4.** Draw the phase diagram for pure inductive circuit.

**5.** Define the term phase difference.

**6.** List any six practical applications of heat produced due to electrical current in metal.

**7.** Define Thermal efficiency.

**8.** State the need of laminations in the transformer core.

**9.** State the relation between voltage, current and turns ratio of Transformer.

**10.** List different losses in the D.C. Machine.

## PART—B

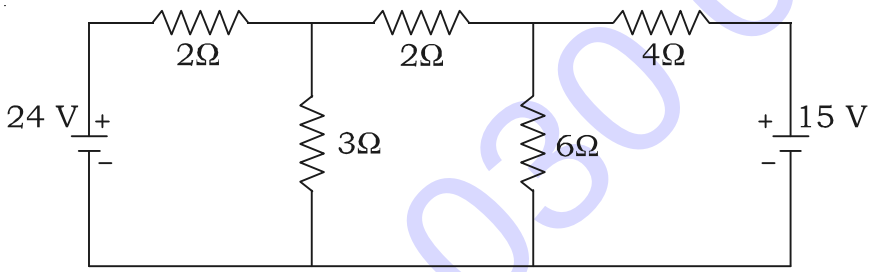
**Instructions :** (1) Answer *any* **five** questions.

(2) Each question carries **ten** marks.

(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

**11.** Derive the transformation formula for star to delta circuit.

**12.** Find the loop currents for the circuit shown below using KVL and KCL.




**13.** A coil has resistance of 20Ω and an inductance of 15mh. If an AC supply of 230V, 50Hz is applied across the coil. Find the impedance, current, phase angle, power factor and power.

**14.** Derive the expression for resonant frequency in series R-L-C circuit and draw the resonance curves.

**15.** Explain the working of electric Kettle with diagram.

**16.** Explain the construction of shell type transformer with diagram.

**17.** Explain the working principle of Auto transformer with diagram.

**18.** Explain the working principle of DC motor with diagram.

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