**7013**

**BOARD DIPLOMA EXAMINATION, (C-20)**

**OCTOBER / NOVEMBER—2023**

**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.** Define loop and branch in circuit.

**2.** List any three differences between active and passive circuits.

**3.** Define resonance in series circuit.

**4.** Write the formula of Impedance and power in RLC series circuit.

**5.** List any three electrical appliances of heat produced due to electric current in metal.

**6.** A transformer has 8 windings in its primary core and 5 in its secondary core. If the primary voltage is 240 V then, find the secondary voltage.

**7.** Define regulation of transformer.

**8.** State the losses in a transformer.

**9.** Classify DC machines with reference to excitation.

**10.** State Fleming's right hand rule.

**Instructions :** (1) Answer either *(a)* or *(b)* from each questions.

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

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

**11.** *(a)* Find the current flowing through 10 Ω resistor by using Kirchhoff's laws.
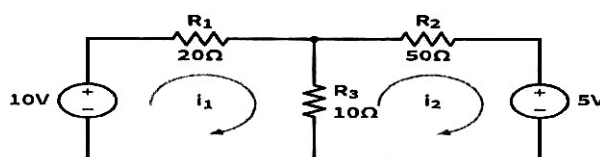


**(OR)**

*(b)* Explain star and delta circuits.

**12.** *(a)* Derive the relationship between voltage and current in pure inductive circuit.

**(OR)**

*(b)* Differentiate between series and parallel resonances in any four aspects.

**13.** *(a)* Explain the construction and working of Electric Kettle.

**(OR)**

*(b)* Explain the construction and working of Geyser.

**14.** *(a)* Explain the working principle of current transformer.

**(OR)**

*(b)* Explain the working principle of Isolation transformer.

**15.** *(a)* Explain the construction of DC generator.

**(OR)**

*(b)* Explain the principle of Alternator.

# PART—C

**Instructions :** (1) Answer the following question.

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

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

**16.** Derive equation for the resonant frequency in RLC parallel circuit.

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