3037

C09-EE–105

# 3037

## BOARD DIPLOMA EXAMINATION, (C-09)

## MARCH / APRIL—2021

## DEEE - FIRST YEAR EXAMINATION

BASIC ELECTRICAL ENGINEERING

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

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**PART—A** 4×5=20

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

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

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

**1.** State the electrical power and electrical energy.

**2.** State the law of resistance.

**3.** State the requirements of low resistivity materials.

**4.** Compare magnetic circuit with electric circuit.

**5.** State the mutual inductance of electromagnetic induction.

**6.** State the dynamically induced e.m.f.

**7.** Draw the pattern of electrostatic field due to :

*(a)* unlike charges side by side

*(b)* isolated positive charge

**8.** List any four factors affecting insulating resistance.

**9.** List the soldering materials.

**10.** Compare between the intrinsic and extrinsic semiconductors.

## PART—B

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

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

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

**11.** Find the monthly bill of your home for the following appliances : 15

*(a)* 2 fans for 10 hours daily [Fan rating : 70 watts]

*(b)* 3 lamps for 12 hours daily [Lamp rating : 20 watts]

*(c)* TV for 1 hour daily [TV : 100 watts]

The charges per kWh are ` 1.10 and meter rent ` 15/month.

**12.** *(a)* List the properties and applications of the following high-resistive materials : 4×2=8

*(i)* manganin

*(ii)* nichrome

*(iii)* tugsten

*(iv)* mercury

*(b)* State the soldering materials. 7

**13.** Explain the working of electrical geyser. 15

**14.** State and explain the Faraday's laws of electromagnetic induction. 15

**15.** Explain the energy stored in a capacitor. 15

**16.** State the important electrical properties of the following Insulating materials : 15

*(a)* insulating resistance

*(b)* volume and surface resistance

**17.** Explain the force between two parallel current carrying conductors in a magnetic field. 15

**18.** Explain the working of p-n junction diode. 15

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