# 3037

BOARD DIPLOMA EXAMINATION, (C-09)

MARCH / APRIL - 2019

**DEEE - I YEAR COMMON 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)   Answer should be brief and straight to the point.*

1      Define the following terms with their units :

(a)    Conductance

(b)    Conductivity

2      Define temperature coefficient of resistance.

3      Write any three applications of tungsten and carbon materials.

4      Classify magnetic materials.

5      Find the area required for an electromagnet having a lifting power of 400 kg with a flux density of 0.1 wb/m$^2$.

6      Two magnetically coupled coils have self-inductance 100mH and 400mH if the coefficient of coupling is 0.8, find the value of mutual inductance between the coil.

7      Define electric field intensity.

8      Write the applications of (a) Card Board (b) Glass.

9      What is the purpose of impregnation ?

10     What is zener diode ? Sketch VI characteristics of zener diode.

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**PART - B**           **10×5=50**

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

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

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

**11** (a) Four resistors are connected in parallel. The current in the first three resistors are 3mA, 6mA and 9mA respectively. The voltage drop across the fourth resistor is 180 V. The total power dissipated is 5W. Determine the value of the resistances of the branches and the total resistance.

(b) Find the indicated current and voltage across 2Ω resistor for a given network.
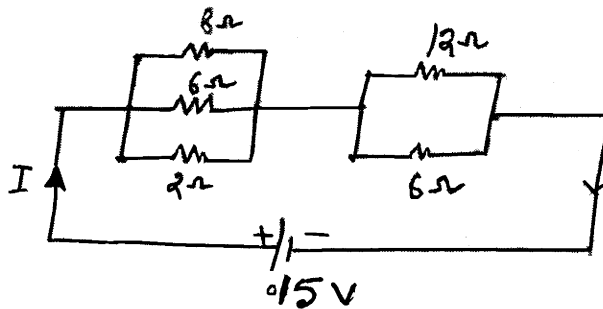


**12** (a) Define thermal efficiency.

(b) A soldering iron is rated at 50W when connected to a 250 V supply. If the soldering iron takes 5 minutes to heat a working temperature of 180°C from 10°C. Find its mass, assuming it to be a made of copper. Given specific heat capacity of copper is 390° C J/KG °C.

13 (a) Prove that F=BIL $\sin\theta$ and show the direction of force in diagram.

(b) Explain magnitude of force on a current carrying conductor in a magnetic field.

14 Obtain an expression for total inductance when two coils are connected in series when flux are :

(a) Aiding (b) Opposing

15 Three capacitors of $10\mu F$, $20\mu F$ and $50\mu F$ are connected in (a) series (b) parallel across a 400V supply. Find the energy stored in each case.

16 (a) Write any five properties of Sulpher Hexafluoride. 5

(b) Mention the applications of Nitrozen. 5

17 Draw and explain the input and output characteristics of CE transistors.

18 (a) Compare Copper and Aluminium in five aspects.

(b) What are the properties of lead ?

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