3037

BOARD DIPLOMA EXAMINATION, (C-09)

MARCH/APRIL - 2019

DIPLOMA IN ELECTRICAL & ELECTRONICS ENGINEERING

BASIC ELECTRICAL ENGINEERING

FIRST YEAR EXAMINATION

Time: 3 Hours **Total Marks: 80**

PART - A (10 x 3 = 30 Marks)

Note 1:Answer all questions and each question carries 3 marks

2:Answers should be brief and straight to the point and shall not exceed 5 simple sentences

1. Define the following terms based on valance electrons.
   a)Conductors b)insulators c)semiconductors
2. State the effect of temperature on resistance for the following substances
   a) Pure metals b) Alloys
3. Write any three applications of tungsten and carbon materials.
4. Define ampere.
5. Define mutual inductance.
6. Find the area required for such an electromagnet to have a lifting power of 400kg with a flux density of 0.1 wb/m2.
7. Define dielectric strength, dielectric constant and dielectric loss
8. Define insulation resistance and volume resistance.
9. What are the advantages of impregnation?
10. Write definitions of intrinsic and extrinsic semiconductors.

PART - B (5 x 10 = 50 Marks)

Note 1:Answer any five questions and each question carries 10 marks

2:The answers should be comprehensive and the criteria for valuation is the content but not the length of the answer

11. A house has the following load a) 5 lamps of 60W, working for 8 hours a day b) 4 lamps of lOOW, each working for Shours a day c) 2heaters of lOOOW, each working for 3 hours a day d) 5 fans of 80W, each working for 12 hours a day. Calculate the monthly bill, if rate of charge is Rs. 0.50 per unit. Add Rs. 10 as a meter rent per month.
12. a) Draw and show the parts of electric kettle
    b) An Electric heater contains 4 liters of water initially at a mean temperature of 15°c, 0.25Kwh is supplies to the water by heater. Assuming no heat losses, what is final temperature of the water?
13. Draw and explain hysteresis loop.
14. Obtain an expression for total inductance when two coils are connected in series when flux are
    a) Aiding b) Opposing.
15. a) State and explain coulombs law of electrostatics
    b) Two small balls having charges one double the other are placed at a distance of 0.6m apart in air. If the repulsive force between the balls is 2.70N determine the charge on each ball.