3037

BOARD DIPLOMA EXAMINATION, (C–09)
OCT/NOV—2018
DEEE—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 the terms :

(a) electrical power, (b) electrical energy.

2. State the laws of resistance

3. Define the terms annealing and hardening.

4. Define magnetic field.

5. Classify the induced emf.

6. State the Fleming's right-hand rule.

7. Define capacitance and its limits.

8. Define insulation resistance.

9. List the various protective materials.

10. Sketch VI characteristics of Zener diode

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

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

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

11. (a) Derive an expression for equivalent resistance when three resistors are connected in parallel.

(b) Develop the formula for resistance at any temperature.

$R_t = R_0(1 + \alpha_0 t)$

12. (a) Mention the properties and applications of aluminium.

(b) Define fuase and what are the materials used for fuse.

13. A kettle was marked 500w, 230V and was found to take 15 minutes to bring 1kg of water at 15^0C to boiling point. Determine the heat efficiency of the kettle.

14. (a) State the Fleming's left-hand rule.

(b) Develop the expression for the force between two parallel current carrying conductors.

15. (a) Derive an expression for total inductance when two inductances are connected in series such that their fluxes are in the opposite direction.

(b) Develop an expression for lifting power of a magnet.

16. (a) Derive an expression for energy stored in a capacitor.

(b) Two capacitors 8µF and 2µF are connected in series across a 100V DC supply. Calculate total capacitance and total charge.

17. (a) Mention the properties of and applications of Mica.

(b) State the classification of insulating materials on the basis of temperature.

18. (a) List the manufacture specifications of Transistor.

(b) Sketch the characteristics of CB, CE configurations.

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