



C09-EC-105

3031

BOARD DIPLOMA EXAMINATION, (C-09)

OCT/NOV—2017

DECE—FIRST YEAR EXAMINATION

BASIC ELECTRONICS

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 electric charge and electrostatic field. 1½+1½=3
2. State Ohm's law.
3. State the factors affecting the capacitance of a capacitor.
4. State the need of fuse in electronic equipment.
5. Mention the necessity of baffle for a loud speaker.
6. Distinguish between drift and diffusion currents.
7. Sketch the forward and reverse characteristics of *P-N* junction diode. 1½+1½=3
8. Draw the output characteristics of CB configuration of a transistor.

- * 9. List different types of transformers.
10. What is the necessity of a starter for starting a DC motor?

PART—B

10×5=50

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

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

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

11. Derive an expression for equivalent resistance of three resistors connected in series. 10
12. (a) List the specifications of capacitors. 4
 (b) Define self-inductance, mutual inductance and coefficient of coupling. 6
13. (a) List various steps involved PCB preparation. 6
 (b) State the standard PCB specifications. 4
14. Explain the working of carbon microphone with a neat sketch.
15. Describe the formation of *P*-type semiconductor material.
16. (a) Define alpha and beta of a transistor. 4
 (b) Derive the relation between alpha and beta of a transistor. 6
17. (a) Compare lead-acid cell with nickel-iron cell. 5
 (b) Explain the working principle of transformer. 5
18. (a) Explain the principle of working of a stepper motor. 7
 (b) List the applications of stepper motors. 3
