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C09–EC–105

3031

BOARD DIPLOMA EXAMINATION, (C–09)

MARCH/APRIL—2016

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.

2. A resistor colour code is yellow, violet, brown and gold. What is its resistance range?

3. Define self-inductance and mutual inductance.

4. List the types of laminates used in PCBs.

5. Mention the applications of crystal microphones.

6. What is avalanche breakdown?

7. Distinguish between drift and diffusion currents.

8. Mention the three types of transistor configurations and draw them.

9. List the types of storage batteries.

10. List the applications of DC motors.

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. *(a)* Describe the working of a rheostat and mention its applications. 5

(b) Explain the effect of temperature on resistance. 5

12. Explain the colour coding of capacitors with examples.

13. *(a)* Sketch the ISI symbols of DPST, DPDT, push button and rotary switches. 5

(b) List the different types of connectors. 5

14. Explain the constructional features and principle of operation of PMMC loudspeaker.

15. Describe the formations of *P*-type and *N*-type semiconductor materials and compare them.

16. *(a)* Compare the performance characteristics of CB, CE and CC transistor configurations. 5

(b) Derive the relationship between alpha and beta of transistor. 5

17. Derive the e.m.f. equation of transformer.

18. *(a)* Explain the working principle of DC motor. 5

(b) Explain the necessity of a starter for starting the motor. 5

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