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C09–EC–105

3031

BOARD DIPLOMA EXAMINATION, (C–09)

MARCH/APRIL—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. State Coulomb's laws of electrostatics.

2. Define peak factor and form factor of an AC quantity.

3. List the losses in capacitors.

4. State the necessity of baffle for a loudspeaker.

5. Draw the energy band diagrams for conductors, semiconductors and insulators.

6. Draw the symbols of NPN and PNP transistors.

7. State the need of fuse in an electronic equipment.

8. Distinguish between Zener breakdown and Avalanche breakdown.

9. List different types of transformers.

10. Write any three applications of a stepper 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. *(a)* Describe the working of rheostat. 6

(b) Compare the features of carbon- and wire-wound potentiometers. 4

12. *(a)* State the factors affecting the capacitance of a capacitor. 4

(b) Define self-inductance, mutual inductance and coefficient of coupling. 6

13. Explain the construction and working of general purpose electromagnetic relay.

14. Explain the construction and working of carbon microphone.

15. Explain the working of PN junction diode with different biasing voltages.

16. *(a)* Draw the input and output characteristics of transistor in CE configuration. 6

(b) Define alpha and beta of a transistor. 4

17. *(a)* Explain the working principle of autotransformer. 6

(b) List the applications of storage batteries. 4

18. *(a)* Explain the working principle of single-phase induction motor. 6

(b) Classify DC generators with reference to excitation. 4

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