



C09-EC-105

3031

BOARD DIPLOMA EXAMINATION, (C-09)

MARCH/APRIL—2018

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 frequency and time period for sinusoidal a.c. quantity.
1½+1½
2. Classify the types of resistors.
3. State losses in capacitors.
4. Mention the use of MCB.
5. Mention the use of woofers and tweeters.
6. Draw energy level diagrams for conductors, semiconductors and insulators.
7. Distinguish between Zener breakdown and Avalanche breakdown.
8. Define alpha () and beta () of a transistor.

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9. State any three ^{*} advantages of secondary cells over primary cells.
10. State e.m.f. equation of d.c. generator.

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. Explain the effects of temperature on resistance and define temperature coefficient of resistance. 7+3
12. (a) Define dielectric constant and dielectric strength of a material. 2+2
 (b) Classify inductors. 3
 (c) List any three specifications of capacitors. 3
13. (a) Explain the working of toggle switch. 6
 (b) Classify relays based on principle of operation and polarization. 2+2
14. Explain the constructional features and principle of operation of PMMC loud speaker. 4+6
15. Describe the formation of *P*-type semiconductor material. 10
16. (a) Compare the performance characteristics of transistors in CB, CE and CC configurations. 5
 (b) Draw the output characteristics of CE configuration and indicate cut-off, active and saturation regions. 5
17. (a) Explain the working principle of autotransformer. 6
 (b) State the relationship between voltage ratio, current ratio and turns ratio of a transformer. 4
18. Explain the working principle of single-phase induction motor. 10
