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C16–EC–105

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BOARD DIPLOMA EXAMINATION, (C–16)

MARCH/APRIL—2017

DECE—FIRST YEAR EXAMINATION

ELECTRONIC DEVICES AND POWER SUPPLIES

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 term 'resistance'.

2. Classify the inductors.

3. State the factors affecting the capacitance of a capacitor.

4. State the purpose of fuse in electronic equipment.

5. List the soldering materials used in soldering.

6. Distinguish between P-type and N-type semiconductors.

7. Distinguish between Zener breakdown and Avalanche breakdown.

8. Compare CB, CE and CC configurations.

9. Classify the FETs.

10. Explain the need for filter circuits in power supplies.

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)* Define temperature coefficient of resistance. 3

(b) Describe the working of thermistor and sensistor, and state their applications. 7

12. *(a)* Explain Surface Mount Technology (SMT) and write its uses. 7

(b) List the materials used in screen printing. 3

13. *(a)* Compare conductors, semiconductors and insulators. 7

(b) Distinguish between intrinsic and extrinsic semiconductors. 3

14. Explain the *V-I* characteristics of PN junction diode in—

(a) forward bias;

(b) reverse bias.

15. *(a)* List the applications of PN junction diode and Zener diode. 5

(b) In a common base configuration, if collector current is 0·95 mA and base current is 0·05 mA, find the value of . 5

16. Explain the working of PNP transistor in common base configuration with the help of input and output characteristics.

17. Explain the construction and principle of operation of depletion type *n*-channel MOSFET.

18. *(a)* Give the expressions for RMS value, average value, ripple factor and efficiency of a half-wave rectifier. 4

(b) Compare half-wave, center tap and bridge rectifiers. 6

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