7032

C20-EC–105

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BOARD DIPLOMA EXAMINATION, (C-20)

JANUARY—2023

DECE – FIRST YEAR EXAMINATION

ELECTRONIC COMPONENTS 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. State the factors affecting the resistance of a resistor.

2. List different types of core material used in inductors.

3. Mention the uses of an MCB.

4. Write the different types of laminates used in PCB.

5. Define drift current.

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

7. Mention the applications of diode.

8. Draw the CE transistor configurations.

9. List the advantages of FET.

10. State the necessity of DC power supply in electronic circuits.

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PART—B

Instructions : (1) Answer all questions.

(2) Each question carries eight marks.

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

11. (a) Define temperature coefficient of resistance and explain the effects of temperature on resistance. 8

(OR)

(b) Describe the working of rheostat with neat sketch and state its applications. 8

12. (a) (i) Draw ISI symbols of switches. 4

(ii) Classify PCBS and list types of laminates used in PCBS. 4

(OR)

(b) (i) List the specifications and applications of relays. 4

(ii) List the materials used in screen printing. 4

13. (a) (i) Define intrinsic semiconductors and fermi level. 4

(ii) Explain the working of PN junction diode with forward biasins. 4

(OR)

(b) (i) Explain valance band, conduction band and forbidden energy gap. 4

(ii) Distinguish between Avalanche and Zener breakdowns. 4

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14. (a) Describe the construction and principle of operation of N-channel JFET. 8

(OR)

(b) Explain the construction and working of N-channel enhancement type MOSFET. 8

15. (a) Describe the working of centre tapped full wave rectifier with wave forms. 8

(OR)

(b) Describe the working of bridge full wave rectifier with wave forms. 8

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PART—C 10×1=10

Instructions : (1) Answer the following question.

(2) The question carries ten marks.

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

16. In a transistor, $I_E = 5$ mA, $I_C = 4{\cdot}95$ mA, $I_{CEO} = 200\mu A$, calculate □, □, □ and I_{CBO}.

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