



C16-EC-105

6032

BOARD DIPLOMA EXAMINATION, (C-16)

MARCH/APRIL—2021

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. Classify the types of resistors.
2. List the specifications of inductors.
3. Define the terms dielectric constant and dielectric strength.
4. Define a switch.
5. List the advantages of PCB.
6. Distinguish between intrinsic and extrinsic semiconductors.
7. List the applications of diodes.
- \* 8. Define Alpha( $\alpha$ ) and Beta ( $\beta$ ) of a transistor.
9. List the advantages of FET over BJT.
10. Define Ripple Factor? What is its value for a half wave and full wave rectifiers?

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## PART—B

- Instructions :** (1) Answer *any five* questions.  
(2) Each question carries **ten** marks.  
(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

11. Explain the colour coding of resistors. 10
12. (a) Describe the methods of etching, cleaning and drilling of PCB. 7  
(b) List the materials used in soldering. 3
13. (a) Explain the formation of *N*-type semiconductor. 4  
(b) Describe energy band diagrams and fermi levels of *P*-type and *N*-type semiconductors. 6
14. (a) Explain potential barrier of *PN* junction diode using energy band diagram. 8  
(b) Write the equation of diode. 2
15. (a) Explain Avalanche breakdown mechanism. 5  
(b) Calculate the collector current of a transistor connected in CE configuration whose base current is  $20 \mu\text{A}$ , leakage current is  $5 \mu\text{A}$  and Beta (  $\beta$  ) is 100. 5
16. Draw and explain the input and output characteristics of transistor in CB configuration. 10
17. Explain the construction and principle of operation of enhancement type *N*-channel MOSFET. 10
18. (a) Draw the circuit diagram of bridge rectifier and explain its working with waveforms. 8  
(b) State the advantages of bridge rectifier. 2

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