



C16-EC-105

**6032**

**BOARD DIPLOMA EXAMINATION, (C-16)**

**OCT/NOV—2018**

**DECE—FIRST YEAR EXAMINATION**

**ELECTRONIC DEVICES AND POWER SUPPLIES**

*Time : 3 hours ]*

*[ Total Marks : 80*

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**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. List the specifications of inductor.
3. Define the terms dielectric strength and dielectric constant.
4. List different types of fuse.
5. List the materials used in screen printing for making PCB.
6. Sketch the energy band diagrams for conductor, semiconductor and insulator materials.
7. Sketch the  $V-I$  characteristics of a  $P-N$  diode.

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8. Sketch the input characteristics of CB configuration.
9. Draw the drain characteristics of MOSFET ( $n$ -channel).
10. Define voltage regulation.

**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 sensor and state their applications. 7
12. Describe the methods of etching, cleaning and drilling of PCB.
13. (a) Compare among conductor, semiconductor and insulators. 5  
 (b) Explain valance, conduction and forbidden bands. 5
14. (a) Explain the formation of  $p$ - $n$  junction diode. 5  
 (b) Describe the working of  $p$ - $n$  junction diode with forward and reverse bias. 5
15. (a) Write the collector current expression in CE and CB mode of a transistor in terms of  $\beta$ ,  $I_B$ ,  $I_E$ ,  $I_C$ ,  $I_{CBO}$  and  $I_{CEO}$ . 5  
 (b) Compare the performance characteristics of CB, CE and CC configurations. 5
16. (a) Distinguish between avalanche and Zener breakdown. 5  
 (b) Define  $V_{AV}$  and  $V_Z$ . Give the relationship between them. 5
17. Explain the construction and working principle of depletion type of  $n$ -channel MOSFET. 5+5=10
18. (a) Describe the working of bridge rectifier circuit with input and output waveforms. 8  
 (b) Explain the need for a filter circuit in power supplies. 2

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