



TED (15/19) 2041  
(Revision – 2015/19)

**A22 –04435**

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Reg. No.....  
Signature .....

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/  
MANAGEMENT/COMMERCIAL PRACTICE, APRIL – 2022**

**BASIC ELECTRONICS**

[Maximum Marks: 100]

[Time: 3 Hours]

**(PART-A)**

(Answer *all* questions in one or two sentences. Each question carries 2 marks)

- I. 1. Compare active and passive components.  
2. Define Resistance and write its unit.  
3. Explain doping.  
4. List any two types of filter circuits.  
5. Draw the symbol of PNP & NPN transistors. (5 x 2 = 10)

**(PART-B)**

(Answer *any five* of the following questions. Each question carries 6 marks)

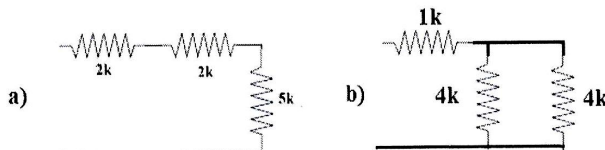
- II. 1. Define Self and Mutual inductance.  
2. Describe Intrinsic & Extrinsic semiconductors.  
3. Distinguish between Zener breakdown & Avalanche breakdown.  
4. Explain the terms TUF, Rectification efficiency and Ripple factor.  
5. Summarize the working principle of a Half wave voltage doubler circuit.  
6. State the effect of temperature in leakage current.  
7. Discuss about the operation of an NPN transistor. (5 x 6 = 30)

**(PART-C)**

(Answer *one* full question from each Unit. Each full question carries 15 marks)

**UNIT – I**

- III. (a) Explain the working principle of transformers and list any three applications. (9)  
(b) Find the effective resistance of given circuits. (6)





**OR**

- IV. (a) Classify different capacitors. (7)  
(b) Briefly elaborate the color coding of Resistors. (8)

**UNIT – II**

- V. (a) With the help of V-I characteristics, explain the principle of operation of diode. (9)  
(b) With the help of energy band diagram distinguish between insulators, conductors and semiconductors. (6)

**OR**

- VI. (a) Explain the working of Zener diode as a voltage regulator. (9)  
(b) Elaborate the working principle of Tunnel Diode with its V-I characteristics. (6)

**UNIT- III**

- VII. (a) Compare Half wave, Full wave & Bridge Rectifiers. (9)  
(b) Explain the working of a positive shunt clipper. (6)

**OR**

- VIII. (a) Compute Average and RMS values of voltage and current of half wave rectifier. (9)  
(b) Explain the working of a  $\pi$  section filter. (6)

**UNIT - IV**

- IX. (a) Explain input and output characteristics of BJT in CB configurations. (9)  
(b) Derive relation between  $\alpha$ ,  $\beta$ ,  $\gamma$ . (6)

**OR**

- X. (a) Compare CB, CE & CC configurations. (9)  
(b) Define input & Output resistance in CE configuration. (6)

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