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(Revision – 2015/19)

A22 –04435

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)

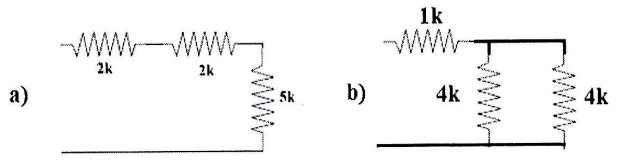
(PART-C)

(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 π section filter. (6)

UNIT - IV

IX. (a) Explain input and output characteristics of BJT in CB configurations. (9)

(b) Derive relation between α, β, γ. (6)

OR

X. (a) Compare CB, CE & CC configurations. (9)

(b) Define input & Output resistance in CE configuration. (6)

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