PAPER ID—16003

B. Tech. EXAMINATION, 2024

(First Semester)

COMPUTER SCIENCE AND ENGINEERING
(CYBER SECURITY)

Code : EEE-101

Basics of Electrical and Electronics Engineering

Time : 3 Hours *Maximum Marks : 70*

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. 1 is compulsory.

1. (a) Justify Electrical and electronics are different. 2

(b) State Kirchhoff's voltage and current law. 2

(c) Draw the symbols : 2

(i) PNP Transistor

(ii) MOSFET

(iii) Current source

(iv) Wattmeter.

(d) What is a balanced system ? 2

(e) Write Shockley equation. 2

Unit I

2. (a) Elaborate role and importance of circuits in Engineering.

(b) Calculate the total current in the circuit by applying suitable theorem. 15

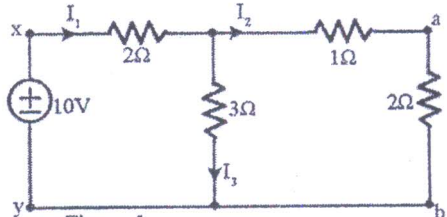


Figure: 1

3. (a) Derive star to delta conversion.

(b) Why source transformation is required ? State Thevenin and Norton theorem. 15

Unit II

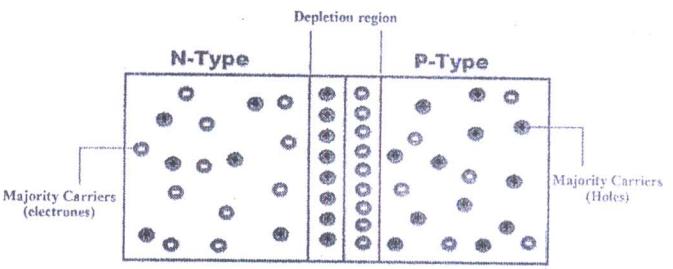
4. Explain in detail active, Reactive, apparent power, power factor and energy. 15

5. (a) With the help of sinusoidal waveform analyse all AC parameters.

(b) With the help of figure analyze the RLC series and parallel circuit. 15

Unit III

6.



Comment and critically analyse the above diagram. 15

7. (a) Draw the output characteristics of Common Emitter configuration. Write the effect of collector voltage on the collator current with reference to the characteristics. What is the effect of base current IB on collector current IC with reference to characteristics ?

(b) Draw the circuit diagram of voltage divider biasing method of BJT. How stability in operating point is obtained ? **15**

Unit IV

8. (a) With the help of neat diagram write construction of *n*-channel FET.

(b) Explain the working of *n*-channel D-MOSFET. **15**

9. Explain and draw the characteristics of field effect transistor. **15**