BACHELOR OF TECHNOLOGY (CBCS) (2021-COURSE)
B. Tech. Sem - II COMPUTER SCIENCE & BUSINESS SYSTEMS : SUMMER : 2024
SUBJECT: PRINCIPLES OF ELECTRONICS ENGINEERING

Day : Monday
Date : 03/06/2024

S-24140-2024

Time : 10:00 AM-01:00 PM
Max. Marks : 60

N.B.

1) All questions are **COMPULSORY.**
2) Figures to the right indicate **FULL** marks.
3) Draw neat and labelled diagram **WHEREVER** necessary.
4) Use of non – programmable **CALCULATOR** is allowed.
5) Assume suitable data if necessary.

Q.1 Draw and explain the effect of increase in temperature on Intrinsic semiconductor with suitable diagram. Draw covalent bonding structure of the same. **(10)**

OR

Q.1 Sketch energy band diagram of P and N type extrinsic semiconductor also explain fermi energy levels for the same types. **(10)**

Q.2 Describe the forward and reverse biasing of P-N junction diode. Draw the characteristics graph and define knee voltage and breakdown voltage. **(10)**

OR

Q.2 Draw and explain working of full wave rectifier with center –tap transformer. Define ripple factor and efficiency for the same. **(10)**

Q.3 What is Transistor? Explain the operation of NPN transistor is active region with suitable diagram and show the flow of charge carriers. What is mean by majority and minority carriers? **(10)**

OR

Q.3 Draw and explain input and output characteristics of Common Emitter configuration for NPN transistor. Describe β of CE configuration. **(10)**

Q.4 Draw and explain common source and common gate configurations used in JFET amplifier. **(10)**

OR

Q.4 Draw and explain the construction and working of N–channel depletion type MOSFET. Also draw drain and transfer characteristic graph. **(10)**

Q.5 Explain types of feedbacks in amplifiers. Describe Barkhausen criteria for oscillation in detail. **(10)**

OR

Q.5 Draw and explain the operational amplifier in Inverting and Non–Inverting mode. **(10)**

Q.6 Draw and explain full adder and full substractor with logic diagram and truth table. **(10)**

OR

Q.6 What is shift register? Draw and explain operation of 4 –bit serial–in parallel out (SIPO- right shift) shift register. **(10)**

* * *