Z(2nd Sm.)-Computer Science-H/Pr./(CC-4P)/ (Inst.)/CBCS/Set - I

2023

COMPUTER SCIENCE — HONOURS — PRACTICAL

Paper : CC-4P

(Basic Electronic Devices and Circuits)

Full Marks : 30

Marks Distribution

1. Viva voce : 05
2. Laboratory Notebook : 05
3. Experiment : 20
   - (i) Design of the Circuit Diagram : 05
   - (ii) Implementation : 10
   - (iii) Result / Output : 03
   - (iv) Discussion : 02

Set - I

Answer ***any one*** question.

1. Study the forward characteristic of a p-n juction diode. Draw the characteristic on a graph and find the cut-off voltage, static and dynamic forward resistance from the graph. 20

2. Study and construct a switch using a Transistor. Draw/plot the transfer characteristics on a graph and measure the threshold voltage from it and show this voltage by LED. 20

3. Construct and study an Inverting amplifier using Operational Amplifier (OPAMP) with 3 sets of voltage gain and calculate the gain from the graph (take at least five readings in each set). 20

4. Construct and study a non-inverting adder using Operational Amplifier (OPAMP) capable of adding two inputs. Draw the voltage transfer characteristics and compare the experiment (from the graph) and theoretical gain (take at least six readings). 20

5. Construct a 3-bit digital to analog converter using R-2R ladder network made of 10K ohms resistors and operational amplifier (if required). 20

6. Study the reverse characteristic of a Zener diode (5.6V/ 7.5V/ 9.0V/ 12V) and calculate the Zener voltage from the characteristic curve plotted on a graph and also calculate the value of current limiting resistance. Choose suitable components for the experiment. 20

7. Construct a variable positive voltage regulator using three terminal linear voltage regulator LM317 and study its load regulation characteristics for 3 different sets of output voltage. Record the characteristics and calculate the load regulation from the graph. 20

8. Construct a half-wave rectifier using power diodes, step down transformer and capacitor (470 μF or more). Study the load regulation and plot the characteristics on a graph with filter and without filter. Calculate the percentage of regulation from the graph. 20
