

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 - V

Answer *any one* question.

1. Design a bridge rectifier circuit using power diodes, transformer (step down) and power capacitor filter (470 μ F or above). Record and plot the load regulation characteristics on a graph and calculate the percentage of load regulation from it.

20

2. Study the output characteristics of a transistor connected in Common Emitter (CE) mode. Take the output characteristics for at least 5 input currents (I_B -Base current). Calculate the dc current gain (β_{dc}) from the graph.

20

(2)

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

3. Study the reverse characteristics of a Zener diode (5.6V/ 7.5V/ 9.0V/ 12.0V). Record and plot the reverse characteristics on a graph. Determine the current limiting resistance for the specified power rating of the Zener diode. Calculate the Zener breakdown voltage from the graph. 20

 4. Design and construct a non-inverting amplifier using Operational Amplifier (OPAMP). Record and plot the voltage transfer characteristics on a graph. Calculate the practical voltage gain from the graph. Take at least 3 sets of data for different voltage gain (for each set take at least 6 readings). 20

 5. Construct an astable multivibrator using timer 555 for an output frequency of 500Hz. Record and plot the output waveform on the graph as observed in the CRO. Determine the frequency from the graph. 20

 6. Study the forward biased characteristics of a p-n junction diode. Record and plot the forward characteristics on a graph. Determine the cut off voltage, static and dynamic forward resistance from the graph. 20

 7. Construct and design a 9 volt positive dc regulated power supply using step down transformer, power diodes, capacitor filters (470 μ F or above) and three terminal regulator LM317. Record and plot the load regulation characteristics on a graph and calculate the percentage of load regulation from it. 20

 8. Design and construct a subtractor using operational amplifier. Record and plot the voltage transfer characteristics on a graph. 20
-