

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 - III

Answer *any one* question.

1. Design and construct a half-wave rectifier using power diodes, step down transformer and filter capacitors ($470\ \mu\text{F}$ or above). Record and plot the load regulation characteristics on a graph. Calculate the percentage of load regulation from the graph (take at least 10 readings). 20

2. Design and construct a negative dc regulated power supply using power diodes, step down transformer, three terminal negative voltage regulators (7905/7906/7909/7912) and power Capacitor filters. Record and plot the load regulation characteristics on a graph and calculate percentage of regulation from it. 20

(2)

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

3. Design an inverter circuit using a transistor used in Common Emitter (CE) mode. Plot the transfer characteristic and measure the threshold voltage from the graph and show it by LED. 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 experimental (from the graph) and theoretical gain (take at least six readings). 20

 5. Construct a 4-bit digital to analog converter using R-2R ladder network constructed out of 10K ohms resistors and Operational Amplifier (OPAMP) to be used only if required (optional). Record the output voltage for all possible input combinations. 20

 6. Construct an astable multivibrator using Timer 555 with frequency of operation of 500Hz. Choose suitable components for your design. Plot the output waveform on the graph and calculate the frequency from it. 20

 7. Construct a 5.6V/ 7.5V/ 9.0V/ 12.0V positive dc regulated power supply using Zener diode with maximum load current of 60mA and consider the knee current as 10mA. Record and plot its load regulation characteristics on a graph and calculate the percentage of load regulation from it. Choose suitable components for your design. 20

 8. Design a bridge rectifier circuit with capacitor filter. Study the load regulation characteristics and calculate the percentage of load regulation from the graph. 20
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