

2024

COMPUTER SCIENCE — HONOURS — PRACTICAL

Paper : CC-4P

(Basic Electronic Devices and Circuits Lab)

Full Marks : 30

The figures in the margin indicate full marks.

Set - I

Distribution of Marks :

Theory / Problem design	:	03
Circuit diagram	:	02
Implementation	:	10
Output / Result (with graph)	:	03/(2+1)
Discussion	:	02
Assignment / Laboratory Notebook	:	05
Viva voce	:	05

Answer *any one* question.

1. Construct a full wave rectifier using power diodes and record its load regulation characteristics and calculate the load regulation from the graph with and without capacitor filter. (Take at least 10 readings).
20
2. Construct a negative dc power supply using three terminal linear voltage regulator. Record / plot the characteristics on a graph and calculate its load regulation from it.
20
3. Construct and study an Inverting amplifier using Operational amplifier (OPAMP) with three different sets of voltage gain and calculate the gain from the graph.
20

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

4. Construct and study an non-inverting adder using Operational amplifier (OPAMP) capable of adding two inputs. 20

 5. Construct a 3-bit digital to analog converter using R-2R ladder network constructed out of resistors and Operational amplifier (if required/ optional). 20

 6. Construct an astable multivibrator using Timer 555 with frequency of operation of 500 Hz. Record / plot the output waveform on a graph and calculate the frequency from it. Assume 60% duty cycle. 20

 7. Study the output characteristics of a transistor in CE mode and calculate the dc current gain (β) from the graph. 20

 8. Construct a variable positive voltage regulator using three terminal Linear voltage regulator LM317 and study its Load regulation characteristics for three different sets of output voltage. Record the characteristics and calculate the Load regulation from the graph. 20
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20-9-24

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SET- II

Distribution of Marks :

Theory / Problem design	:	03
Circuit diagram	:	02
Implementation	:	10
Output / Result (with graph)	:	03/(2+1)
Discussion	:	02
Assignment / Laboratory Notebook	:	05
Viva voce	:	05

Answer *any one* question.

1. Study the forward characteristic of a p-n junction diode and determine the static and dynamic resistance from the graph. 20
2. Study and construct switch using a Transistor. Draw / record its transfer characteristics and measure the threshold voltage from the graph. 20
3. Construct and study a non-inverting amplifier using Operational Amplifier (OPAMP) with three sets of voltage gain and calculate the gain from the graph. (Take at least six readings in each set). 20
4. Construct and study a inverting adder using Operational Amplifier (OPAMP) capable of adding two inputs. (Take at least six readings). 20

(2) B(2nd Sm.)-Computer Science-II/Pr./CC-4P/Inst./CBCS/Set-II

5. Study a digital to analog converter constructed using 3-bit R-2R ladder network made of resistors and Operational amplifiers (if required). 20

 6. Design and construct a subtractor using Operational Amplifier. (Take at least six readings). 20

 7. Construct a positive dc 8 volts regulator using LM317 and calculate its load regulation characteristics from the graph. 20

 8. Construct a full wave rectifier using power diodes and study its load regulation characteristics with and without capacitor filter from the graph. 20
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