EXPERIMENT NO. 6

TITLE: Study of Class A Amplifier operation

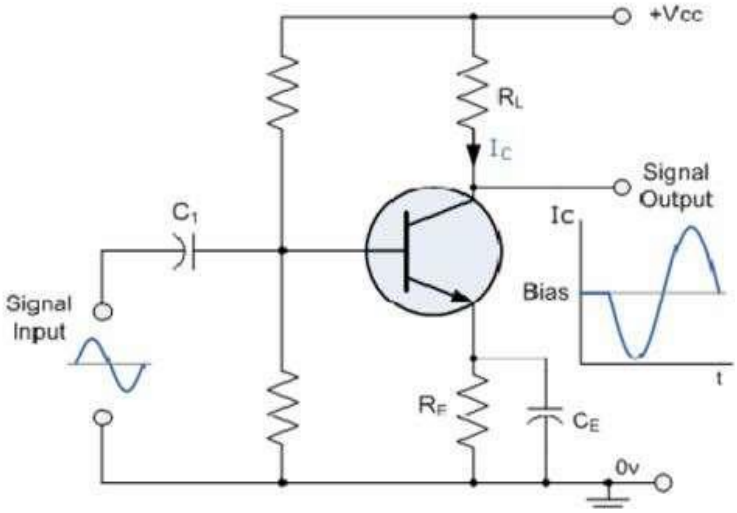
OBJECTIVE: To study the operation of Class A amplifier and determine voltage gain.

APPARATUS:

Sl. No.	Instruments/Apparatus	Instrument Serial No.	Range	Quantity
1	Power Amplifier Trainer Kit	NV6522	-	1
2	2 mm patch cords	-	-	6
3	Oscilloscope	SM430	-	1

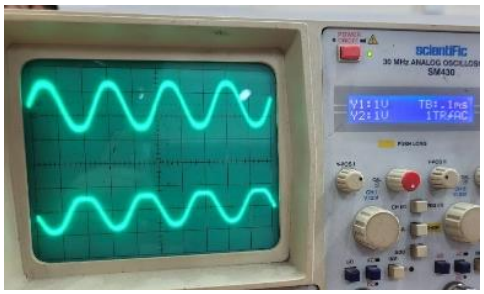
SETUP DIAGRAM:

Circuit Diagram of class A amplifier is shown below:



OBSERVATIONS:

1) 2V Input Voltage



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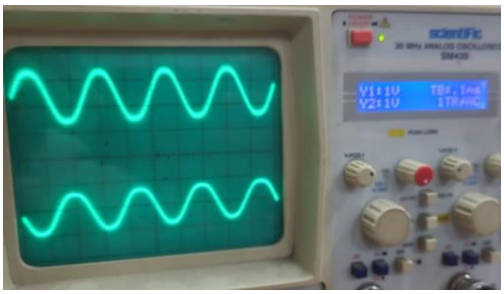

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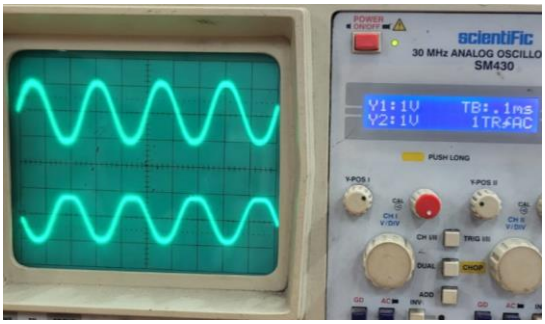
2) 2.4V Input Volage



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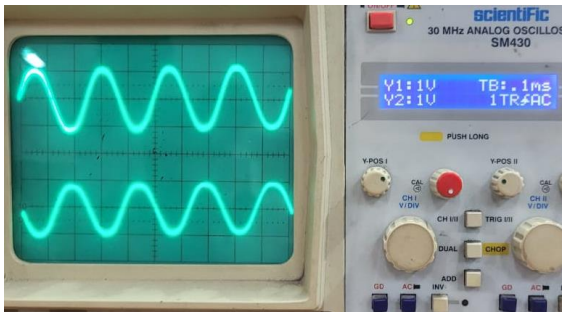

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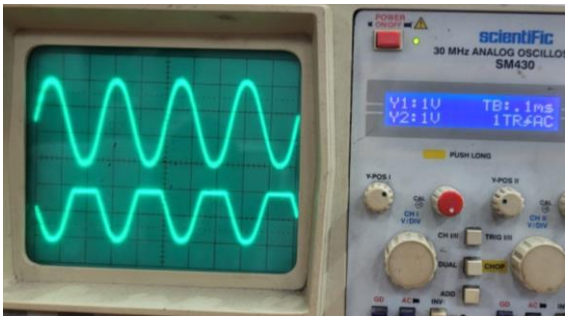
3) 3.2V Input Voltage



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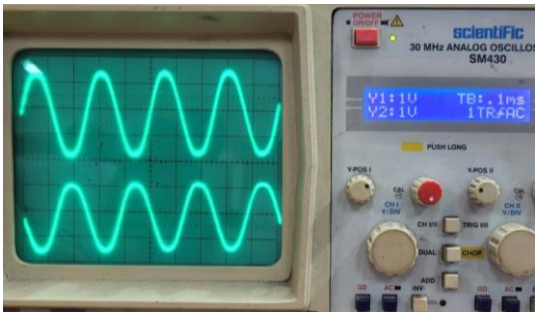

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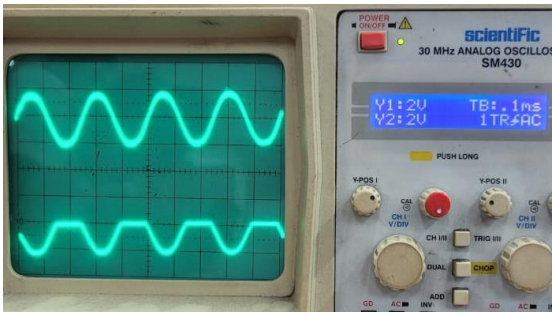
4) 4V Input Voltage



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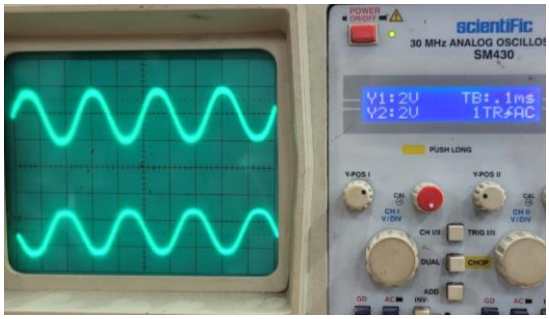

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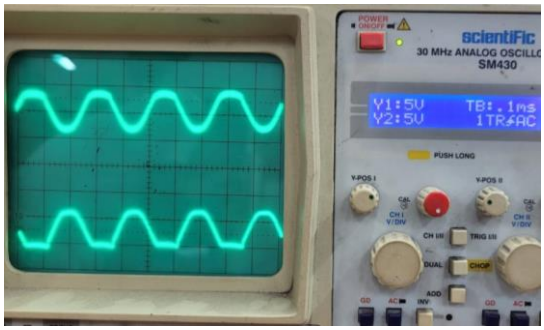
5) 8V Input Voltage



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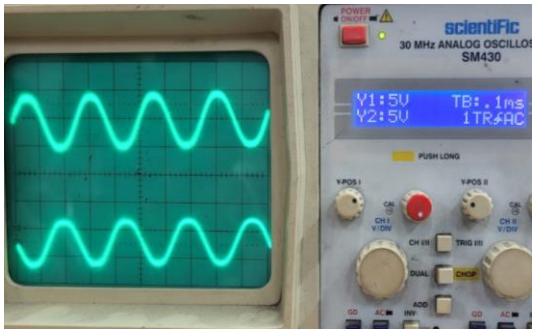

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DATA SHEET:

23JE0145

Aritra Bera

29/8/24

Expt.6 – STUDY OF CLASS A AMPLIFIER

Observation Table:

Sno.	Input Voltage	Output Voltage	Gain
1	2V	1.4V	0.7
2	2.4V	1.8V	0.7
3	3.2V	2V	0.625
4	4V	2.2V	0.55
5	8V	6V	0.75

frequency = 10KHz

Scale : $Y_1 = 1V$

$Y_2 = 1V$

Calculations:

1) $\frac{V_o}{V_{in}} = \frac{1.4}{2} = 0.7$

2) $\frac{V_o}{V_{in}} = \frac{1.8}{2.4} = 0.7$

3) $\frac{V_o}{V_{in}} = \frac{2}{3.2} = 0.625$

4) $\frac{V_o}{V_{in}} = \frac{2.2}{4} = 0.55$

5) $\frac{V_o}{V_{in}} = \frac{6}{8} = 0.75$

29/8/2024

RESULTS & COMMENTS:

The voltage gain was found to be close to 0.6 or 60% for most input voltages. The output showed very less distortions unlike class B amplifiers, because of its high linearity. This result is consistent with theoretical predictions. The amplifier also had a very simple design consisting of only one BJT transistor. These characteristics make it excellent for applications where the output signal's quality is to be prioritized.