EXPERIMENT NO. 5

TITLE: Study of Class B Amplifier operation

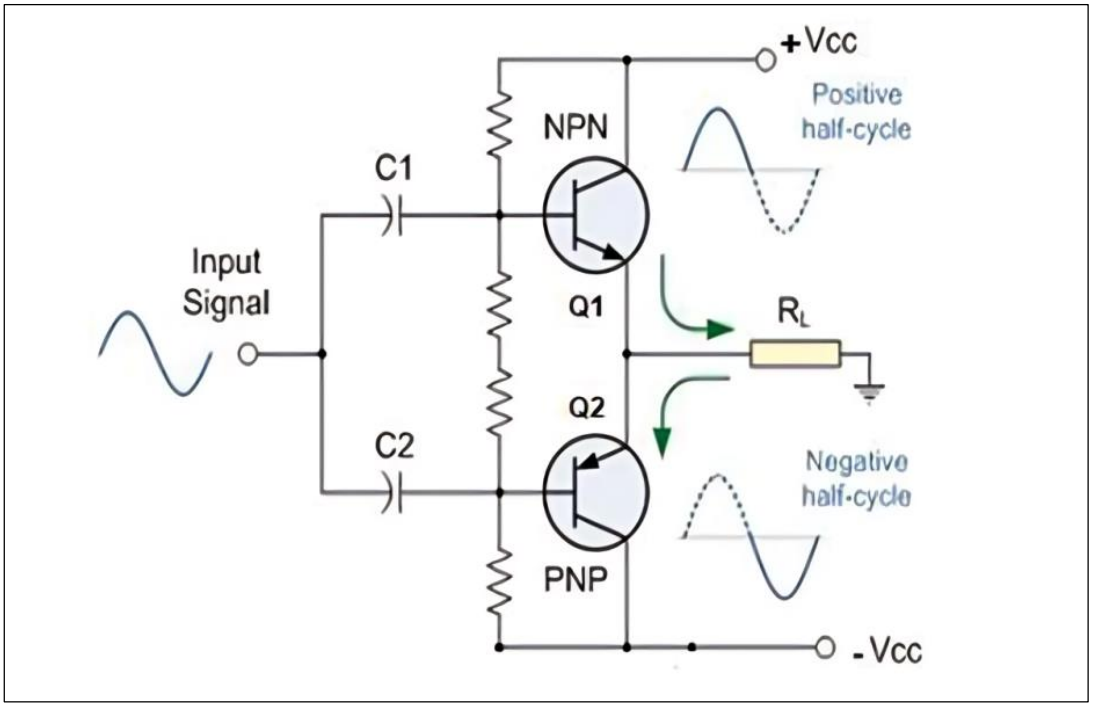
OBJECTIVE: To study the operation of Class B amplifier and determine crossover distortion span (per cycle) at different loading condition.

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 B amplifier is shown below:



DATA SHEET:

Anirban Bera
23JE0145

Exp - 5

STUDY OF CLASS-B AMPLIFIER

Sl.no.	Frequency	Crossover distortion Span (per cycle) in degree	peak magnitude Input Voltage	Output Voltage
1	10KHz	144°	$2V_{pp}$	$1.4V_{pp}$
2	15KHz	205.71°	$2V_{pp}$	$1.3V_{pp}$

22/8/2024

f = 10KHz

360° → 10 div.

⇒ 1div → 36°

Crossover distortion = 4div

= 4 x 36 = 144°

f = 15KHz

360° → 7 div.

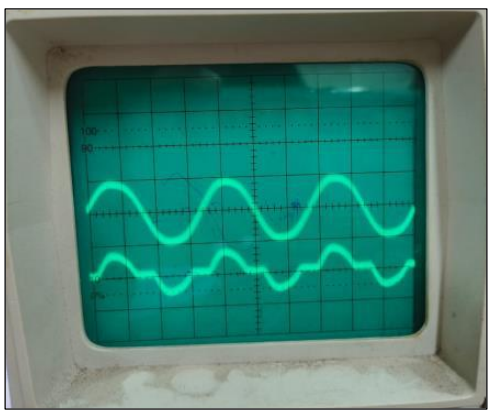
⇒ 1div → (360/7)°

Cross distortion = 4div

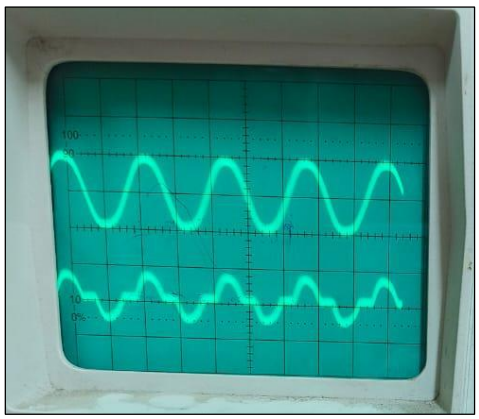
= 4 x 360/7 = 205.71°

OBSERVATIONS:

1) At f = 10 kHz



2) At f = 15 kHz



RESULTS & COMMENTS:

In the experiment on Class B amplifiers, we observed that the amplifier achieved a good efficiency (> 50%), consistent with theoretical predictions. The output signal had crossover distortions, which is typical for Class B designs. These findings highlight the Class B amplifier's effective power efficiency and its inherent trade-offs in signal quality, emphasizing the importance of optimizing biasing to reduce distortion.