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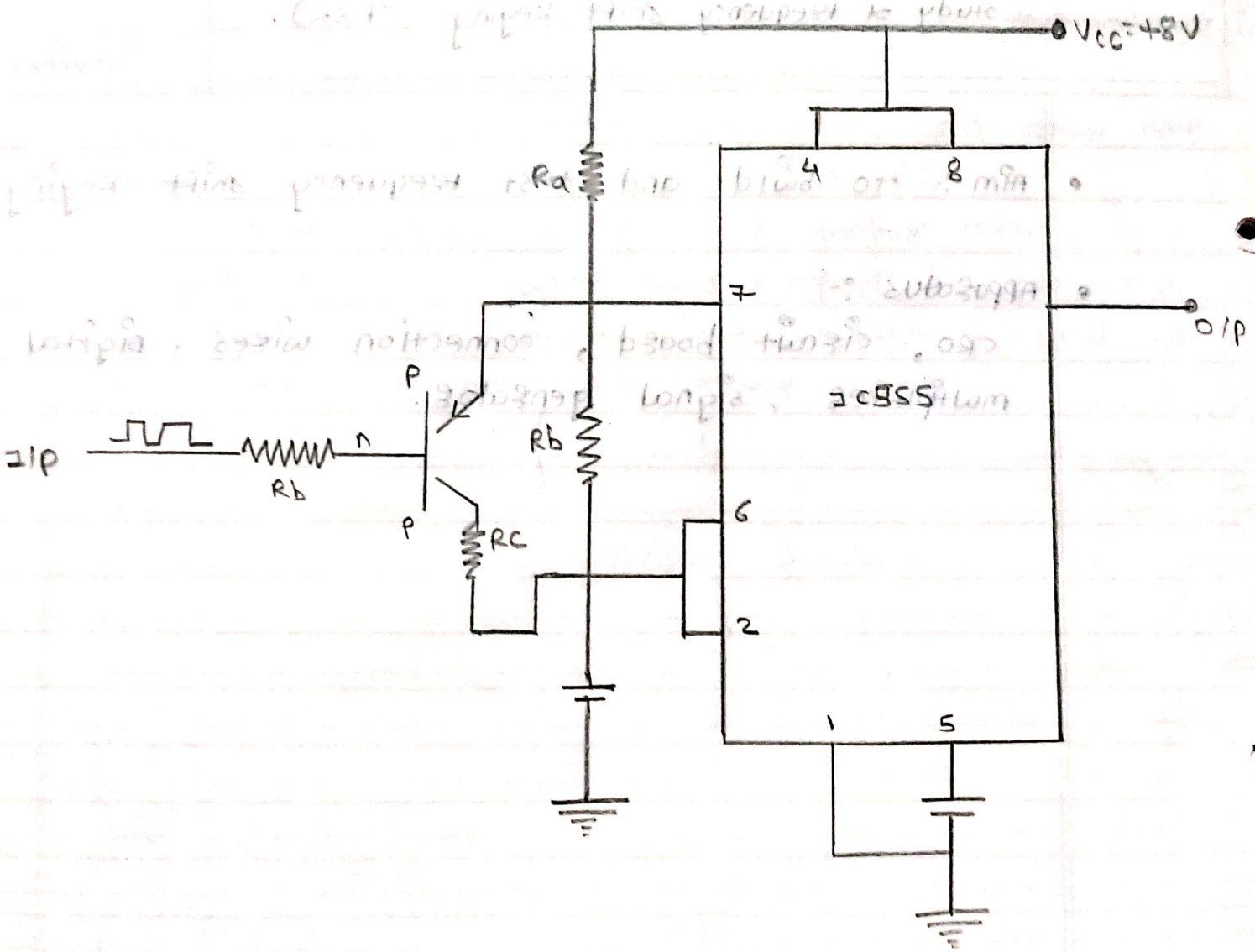
eriment No. : Performed Date : / /20
of Experiment : Study of frequency shift keying (fsk).

REMARKS

- Aim :- To build and test frequency shift keying.
- Apparatus :-
  CRO, circuit board, connection wires, digital multimeter, signal generator.

circuit diagram :-



- observation table :-

Input	T_{ON}	T_{OFF}	$\lambda = T_{ON} + T_{OFF}$	t(ms)	$T = \lambda \times t$	$f = \frac{1}{T}$
Logic '0'	0.5	0.5	$\lambda = 0.5 + 0.5$	0.2	$T = 1 \times 0.2$	$f = 1/0.2$
			$= 1$		$= 0.2$	$= 4.166$KHZ
Logic '1'	2.6	2.6	$\lambda = 2.6 + 2.6$	0.2	$T = 5.2 \times 0.2$	$f = 1/0.4$
			$= 5.2$		$= 1.04$	$= 0.968$KHZ
FSK	1	1	$\lambda = 1 + 1$	2	$T = 2 \times 2$	$f = 1/4$
			$= 2$		$= 4$	$= 0.25$ KHZ

- procedure :-

i) connect the circuit as shown in figure and apply 45V supply.

ii) apply logic '0' i.e. 0V and measure the o/p frequency at IC-555. apply logic '1'. i.e 5V i/p and measure o/p frequency.

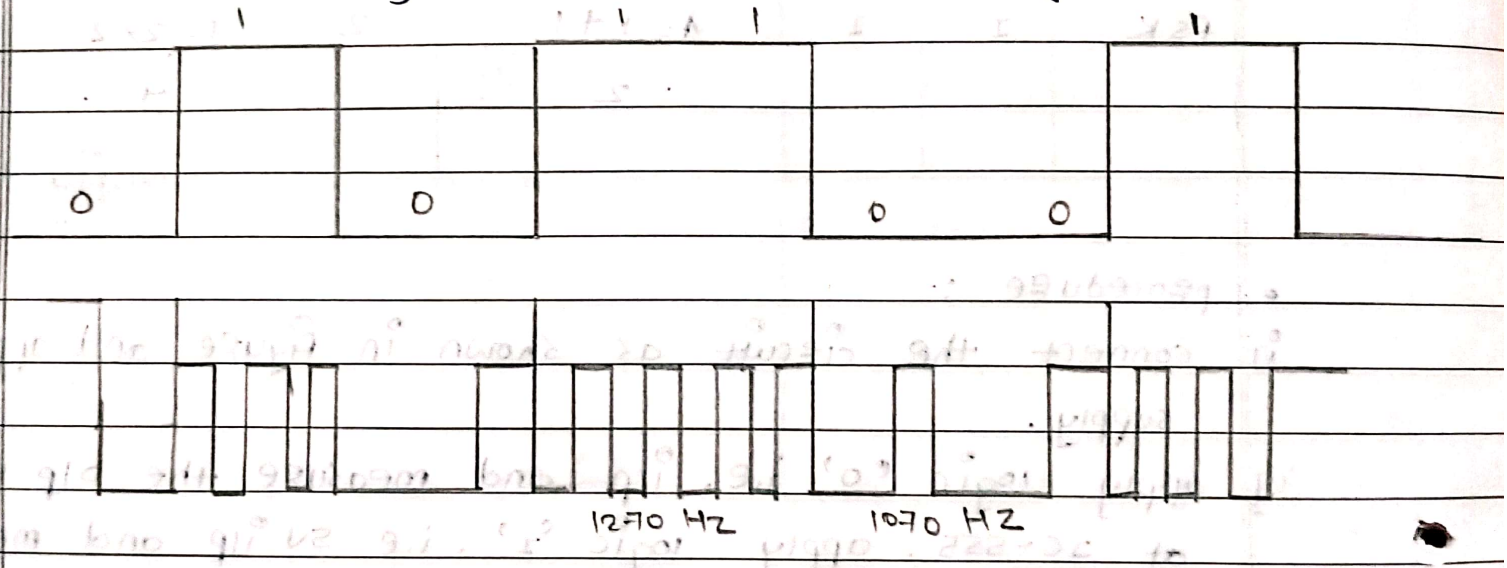
iii) then apply TTL clk as modulation signal. vary frequency between 150 to 300 Hz and see the nature of o/p w.r.t i/p signal.

iv) draw the nature of o/p on graph paper.

- theory :-

In the FSK two different square wave frequencies are used to represent 0 & 1.

E.g. Binary zero usually called as space in data communication has frequency of 1070 Hz and binary 1 called mark has frequency of 1270 Hz. These two frequency are alternetly transmitted to create serial binary data to present full duplex operation Another set of frequenly for binary 0 is 2025 Hz and for binary 1 is 2225 is assigned.



Here we should note that the two frequency corresponding to '0' & '1' are within 300 Hz and 300 KHz and width genrally associate with telephone line. these tones are assigned with video frequencies from 300Hz for 3000Hz in communication are used at a receiver side. the process of modulation is done with help of modem.

- Result :-

Input	output
logic 0	4.166 KHz
logic 1	0.9615 KHz
modulating signal frequency FSK	0.25 KHz.

- conclusion :-

1. we have studied and build frequency shift keying.
2. In FSK digital signal is transmitted using different frequency for different discrete level.
3. Binary input has only two level 0 and 1. so only two frequencies named as work and space are transmitted.

$f_1 = fc + \Delta f$, mark frequency for binary 1.

$f_2 = fc - \Delta f$, space frequency for binary 0.

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Title of the Graph FSK

Scale On x axis, 1 cm =

On y axis, 1 cm =