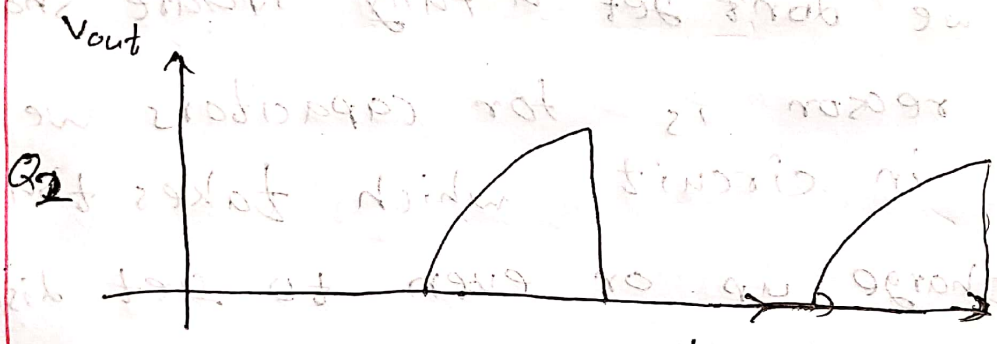
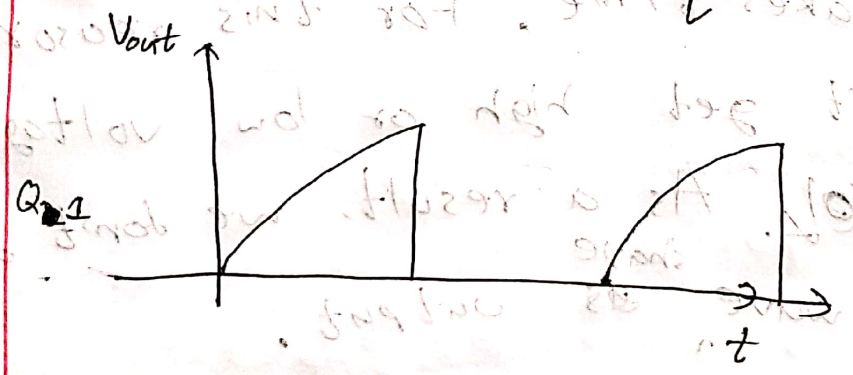
Md. Shahriar Khan Limon
ID: 19101444 Sec: 08, ~~CSE4~~ CSE350 Sec: 08

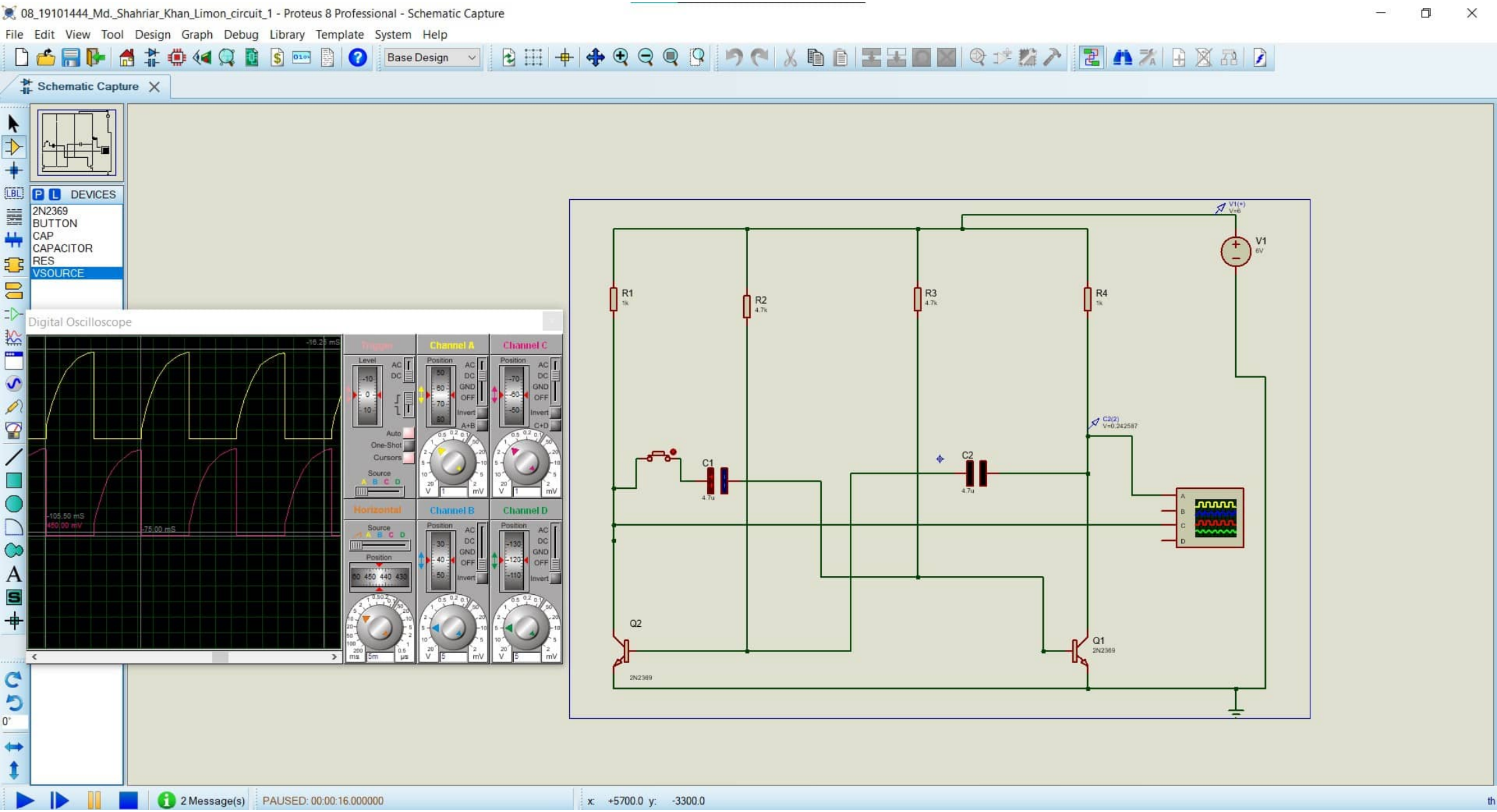
Name of the experiment: To design and simulate an Astable Multivibrator circuit.

Report:

1.






08_19101444_Md._Shahriar_Khan_Limon_circuit_1 - Proteus 8 Professional - Schematic Capture
File Edit View Tool Design Graph Debug Library Template System Help
Base Design
Schematic Capture
DEVICES
2N2369
BUTTON
CAP
CAPACITOR
RES
VSOURCE
Digital Oscilloscope
Trigger
Channel A
Channel C
Horizontal
Channel B
Channel D
R1
R2
R3
R4
V1
C1
C2
Q1
Q2
2N2369
2 Message(s)
PAUSED: 00:00:16.000000
x: +5700.0 y: -3300.0

2. Yes, I think there is deviation in the experimental output wave shape from the desired wave. According to the theory, we should get the wave which should be looked like square form. But we don't get a fully square shape. The reason is for capacitors we have used in circuit which takes time to charge up or even to get discharged, it still takes time. For this reason we don't get high or low voltage immediately. As a result, we don't get square wave shape as output.

3. The time period of the experimental wave is, $T_E = (105.5 \times 10^{-3} s - 25 \times 10^{-3} s)$

$= 30.5 \times 10^{-3} s$

$= 0.0305 sec$

The time period of the ~~exper~~ calculated wave is :

here, ~~$t_1 = 0.69\ s$, $t_2 = 0.69\ s$~~

$R_3 = R_2 = 4.7k\Omega = 4.7 \times 1000\ \Omega$

$C_1 = C_2 = 4.7\ uF = 4.7 \times 10^{-6}\ F$

here, $t_1 = 0.69 \times R_3 \times C_1$, $t_2 = 0.69 \times R_2 \times C_1$

We know, $T_c = t_1 + t_2$

$= 0.69 \times 4.7 \times 10^3 \times 4.7 \times 10^{-6}$
$+ 0.69 \times 4.7 \times 10^3 \times 4.7 \times 10^{-6}$

$= 0.0304842$

$\approx 0.0305\ s$

here, $T_E = T_c$.

So, the time period of the experimental wave is similar to the calculated wave..

4. It can possible to use the above ~~multiver~~ multivibrator to create variable frequency square wave generator. If we change the the time period of the square wave, we can change the frequency of the square of. Again, if we change the parameters (capacitors, resistors mainly R_2 & R_3), we can change the time period of the wave. So, it's possible.

5. The percentage of the time in the time period when ~~the~~ the output is high is ~~th~~ called the duty cycle of the circuit. So, if we change the parameters for which that change the time period, the ~~duty~~ time in output is high will also change, so as the duty cycle will change also. The parameters are resistors (R_2, R_3) and capacitors