

سوال 1:

Pwm_duty cycle%	10	30	50	70	90
Speed(rpm)	17.1	51.3	84	115	150
Compare register(OCR0)	1A	4D	80	B2	E5
Compare register(OCR0 INT)	26	77	128	178	229
Figure	1	2	3	4	5

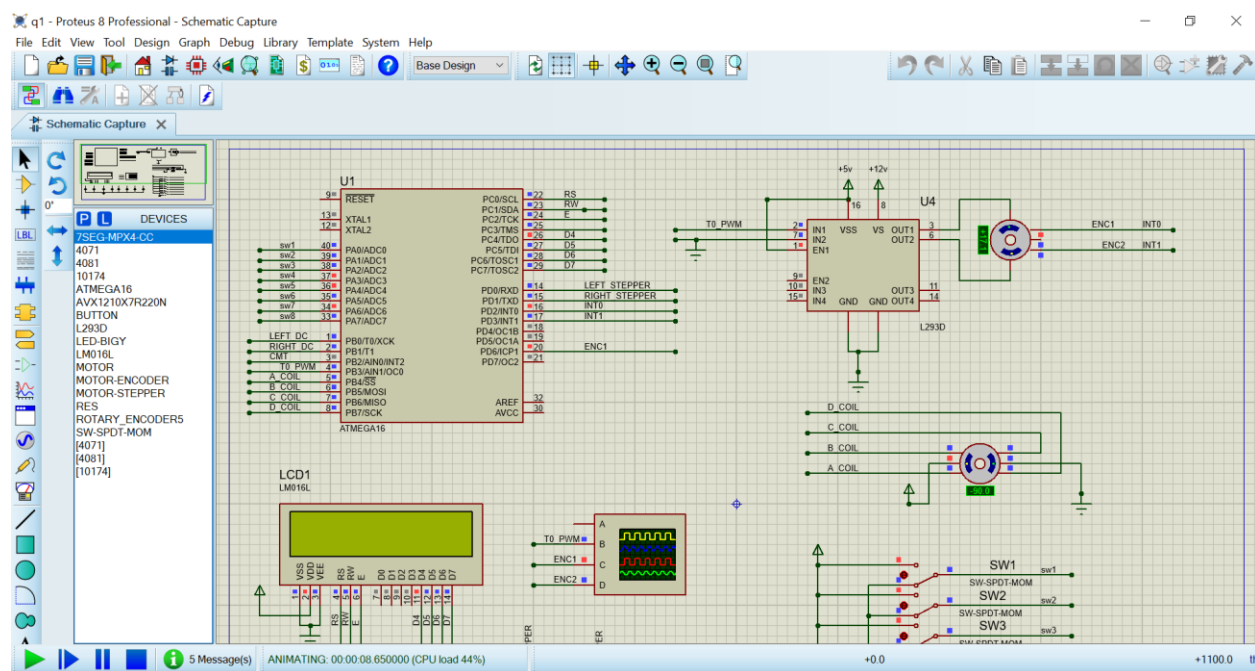
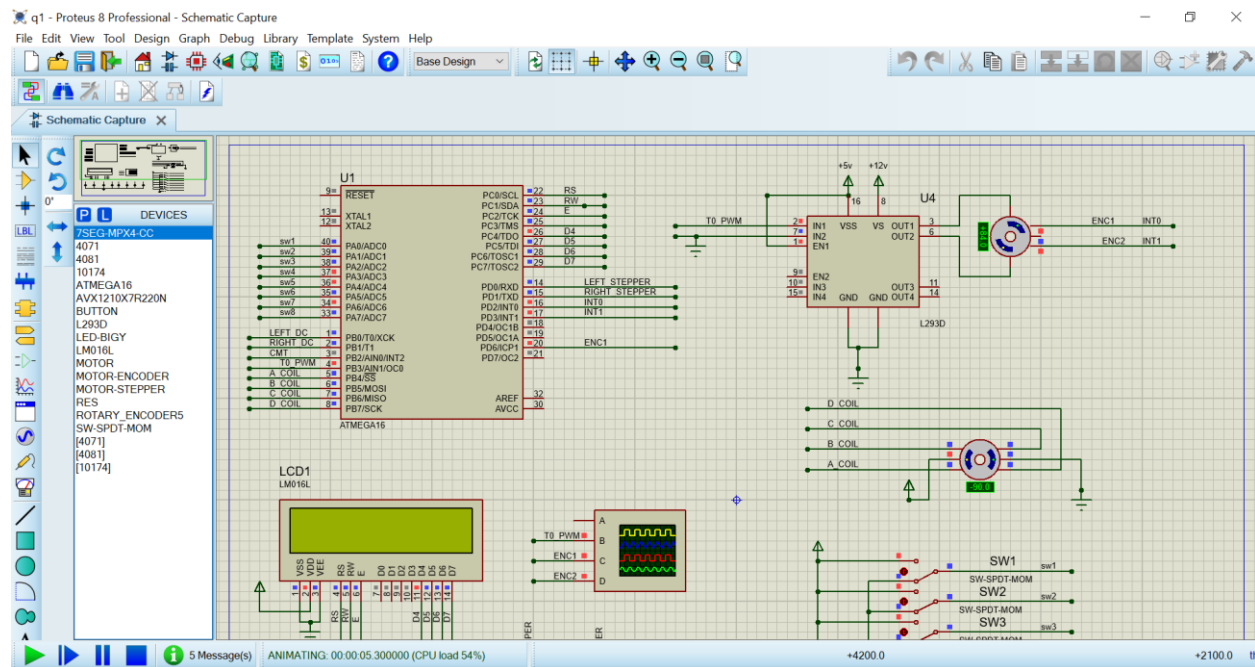
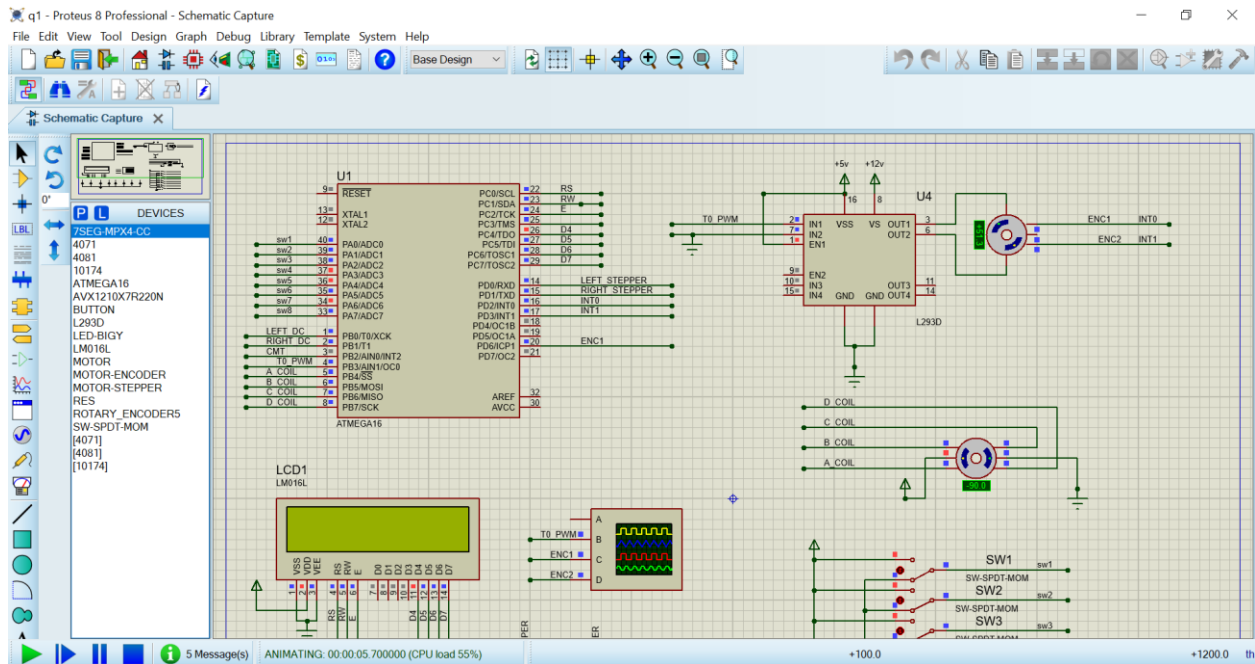


Figure 1



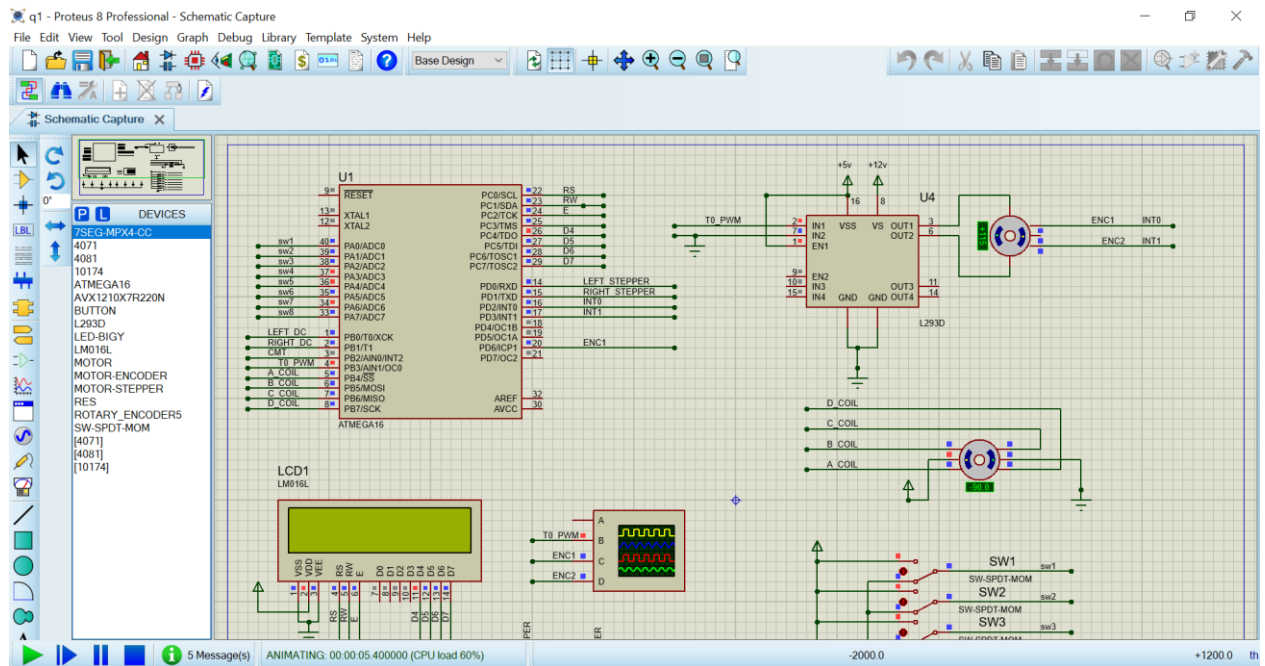


Figure 4

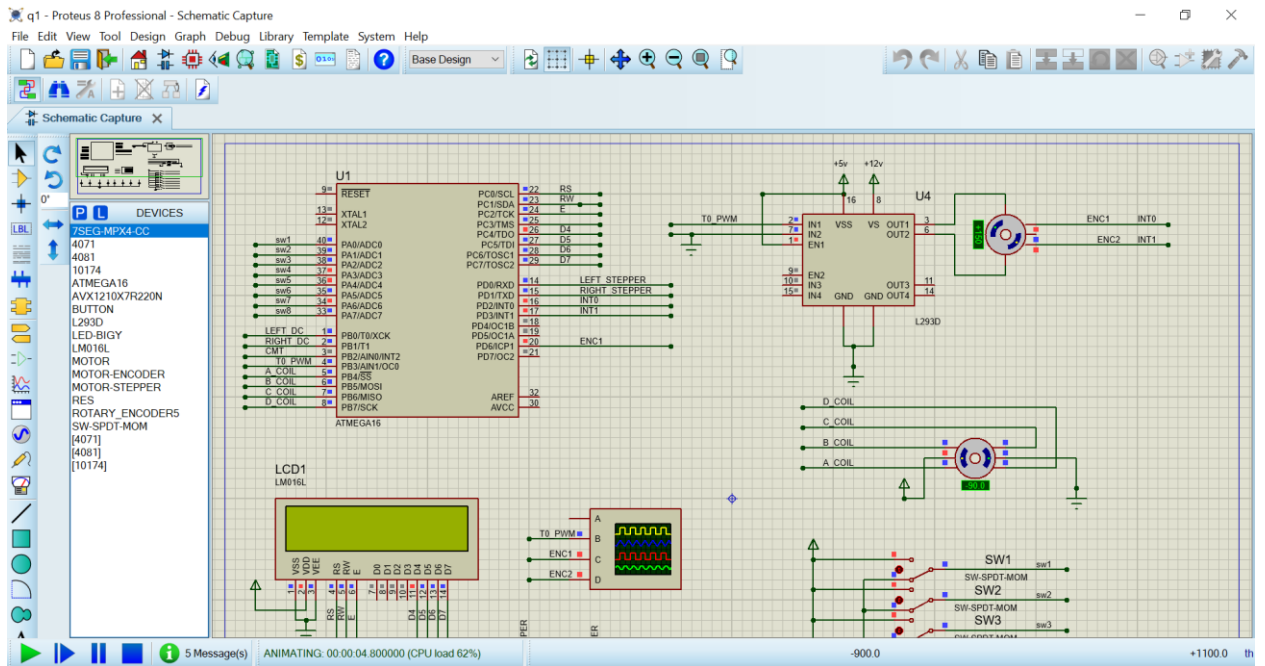


Figure 5

سوال 2:

Pwm_duty cycle%	10	30	50	70	90
Speed(rpm)	17.1	51.3	84	115	150
Compare register(OCR0)	1A	4D	80	B2	E5
Compare register(OCR0 INT)	26	77	128	178	229
Figure	1	2	3	4	5

$OCR0 \propto \text{duty cycle}$

$$OCR0 = x \times \text{duty cycle} \rightarrow x = \frac{OCR0}{\text{duty cycle}}$$

$$\text{for } 10 \rightarrow x = \frac{26}{10} = 2.6$$

$$\text{for } 30 \rightarrow x = \frac{77}{30} = 2.56$$

$$\text{for } 50 \rightarrow x = \frac{128}{50} = 2.56$$

$$\text{for } 70 \rightarrow x = \frac{178}{70} = 2.54$$

$$\text{for } 90 \rightarrow x = \frac{229}{90} = 2.54$$

Finally :

$$OCR0 = \frac{255 \pm 1 \times \text{duty cycle}}{100} \rightarrow \text{duty cycle} = \frac{OCR0}{255 \pm 1} \times 100$$