## How many Motors at most which can be connected to L293D chip?

- 4 motors to rotate in two directions
- 1 motor to rotate on two directions
- 2 motors to rotate in one direction
- o 6 motors to rotate in one direction
- 4 motors to rotate in one direction

Clear my choice

In input signal processing, to cancel the peaks on the high level which may burn the PIC, we can use:

- O RC filter alone will solve it
- o Schmit trigger alone will solve if OWEROUNIT
- Free wheeling diode will solve the problem
- O Current limiting resistors with the clamping diodes will solve the problem
- RC filter with Schmit trigger will solve it

Clear my choice

Switch bouncing exists in all mechanical switches. Which of the following is correct regarding it?

- O Bouncing time is for very short time and can't be noticed by eye. Therefore, it does not affect the logic of the program.
- O Bouncing can be solved using RC filter with Schmit trigger
- Bouncing can be prevented by adding a clamping diode
- Bouncing can be solved by adding delay shorter than the bouncing time between every two consecutive readings of the switch
- Bouncing can be solved using interrupt

Which of the following sensors can be used to whether there is a close object or not? (1.5 minutes estimated time)

- Ultra sonic sensor
- o motion sensor
- Microswitch



- Light dependent resistor
- Optical object sensing

Clear my choice

Which of the following settings can be used to connect 2 switches to RB0-RB1, 3 motors to RB2-RB4, and three sensors to RB5-RB7. (Estimated time 1.5 minutes)

- O TRISB=B'1111 1000'
- O TRISB=B'0001 1111'
- O TRISB=B'0001 1100'



- O TRISB=B'0000 0000
- TRISB=B'1110 0011'

Clear my choice

Using the ADC in PIC 16F877A to obtain one sample of an analog signal connected to AN7. Assume the ADC clock to be Fosc/4 and voltage references to be external. Assume (RS=2 K Ohm, RSS = 6 KOhm, RIC=10KOhm, CHold=100 pF), and temperature 45 C. The result should be left justified. (Estimated Time 15 minutes)

- a) What is the value of the ADCON0?
- b) what is the value of ADCON1?
- c) What is the sampling time in microseconds?
- d) Assume repetitive sampling, if TAD= 2 microseconds, Taq=5 microseconds, quantization time = 20 microseconds, what is the maximum signal frequency that can be converted using this ADC?

Which of the following settings can be used to connect 4 switches to RB0-RB3, 2 motors to RB4-RB5, and 2 sensors to RB6-RB7. (Estimated time 1.5 minutes)

- TRISB=B'1111 1000'
- TRISB=B'0000 0000'
- TRISB=B'0011 0000'
- TRISB=B'1100 1111'
- TRISB=B'0011 1111'

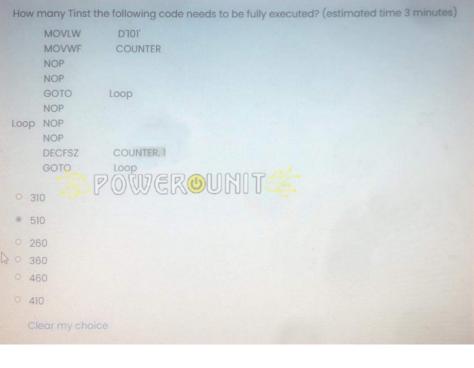
If we want to connect a seven segment display, then we need 7 pins. How many pins are minimum needed to connect 5 seven segment displays which may display numbers between 00000 and 99999? (estimated time 1.5 minute).

- 13 pins only
- o 7 pins only
- o 12 pins only
- 35 pins minimum
- 0 11 pins only

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Which interrupt is impossible to wakeup the microcontroller from sleep mode? (Estimated time 1.5 minutes)

- O Timer I overflow interrupt
- O End of ADC conversion interrupt
- Timer 2 overflow interrupt
- O Port B change interrupt
- Clear my choice



When connecting a motor to the PIC, which of the following statements is incorrect? (estimated time 1.5 minutes)

- There is no way to interface the motor to a PIC
- We may use L293D (H-Bridge) to drive the motor by external power supply
- We may use MOSFET to drive the motor by external power supply
- We may use transistor to drive the motor by external power supply
- Motors usually need high power, the PIC may drive them but not efficiently. Therefore, it is better to connect the motor to an external power source.

Clear my choice