Lecture Lec03.ppt in class worksheet

Question 1. How many bits wide is Port B? How many bits wide is Port F?

A:

PORTB:8

PORTF:5

Question 2. Why are there two shift right instructions (**`LSR`** and **`ASR`**)?

`ASR` is a signed shift right, maintaining the sign bit as it shifts

A:

ASR means algrithom shift right, all bits move right,and most left bit maintains its sign.

LSR means logically shift right,all bits move right,and most left bit replaced by 0

Question 3. Why are there five versions of the LDR instruction?

LDR, LDRB, LDRSB, LDRH, LDRSH

A:

LDR: load 32bits data to register from memory

LDRB:load 8 bits data using zero extend to 32 bits from memory

LDRSB: load 8 bits data using sign extend to 32 bits from memory

LDRH: load 16 bits data using zero extend to 32 bits from memory

LDRSH: load 16 bits data using sign extend to 32 bits from memory

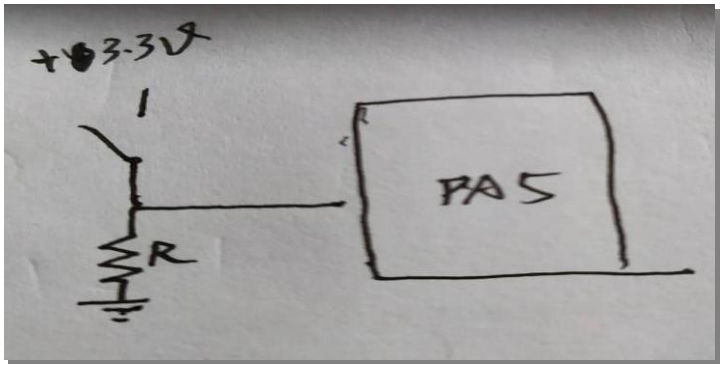
Question 4. What address allows us to access just pin PA7?

A:

0x40004200

Question 5. Interface a switch to Port A bit 5 using positive logic.

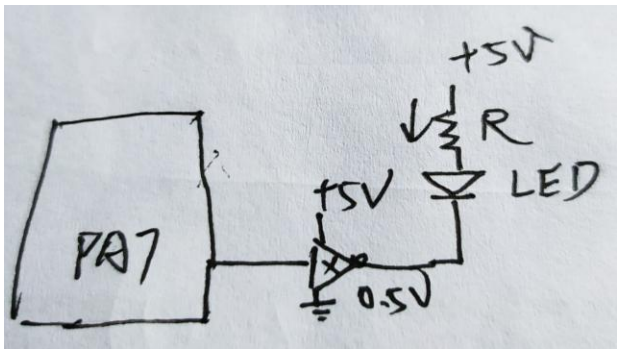
A:



Question 6. Interface an LED to Port A bit 7 using positive logic. The LED parameters are 1.5V 20mA. Assume the output low voltage of a 7406 V_{OL} is 0.5V. Calculate the limiting resistor and give the connection Diagram.

A:

R = (5-0.5-1.5)/0.02=150Ohm



Question 7. Interface an LED to Port A bit 4 using positive logic. The LED parameters are 1.4V 2mA. Assume the microcontroller output voltage V_{OH} is 3.2V. Calculate the limiting resistor and give the connection Diagram.

A:

R=(3.2-1.4)/0.002=900Ohm