1. What are the GPIO control registers that the lab mentions? Briefly describe each of their functions.

   MODER – Sets the mode of the pin to input, general purpose output, alternate function, analog
   OTYPER – Selects type of output from push-pull or open drain
   OSPEEDR – Selects speed of output from low, medium, high
   PUPDR – Sets pull up and/or pull down
   IDR – Input data register, read only, contains state of input port
   ODR – Outpud data register, read write, can read or set state of output port
   BSRR – Bit set/reset register, BR resets output port when set high, BS sets output port when set high
   LCKR – Locks configuration of port bits
   AFRL/AFRH – Configures ports alternate function
   BRR – Setting high will reset output port state

2. What values would you want to write to the bits controlling a pin in the GPIOx_MODER register in order to set it to analog mode?

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3. Examine the bit descriptions in GPIOx_BSRR register: which bit would you want to set to clear the fourth bit in the ODR?

   BR[4] – GPIOx_BSRR[20]

4. Perform the following bitwise operations:
   a. 0xAD | 0xC7 = 10101101 AD
      11000111 C7
      11101111 =EF

   b. 0xAD & 0xC7 = 10101101 AD
      11000111 C7
      10000101 = 85

   c. 0xAD & ~(0xC7) = 10101101 AD
      00111000 ~C7
      00101000 = 28

   d. 0xAD ^ 0xC7 = 10101101 AD
      11000111 C7
      01101010 = 6A

5. How would you clear the 5th and 6th bits in a register while leaving the others alone?

   REG &= ~((1 << 5)) | (1 << 6))

6. What is the maximum speed the STM32R072R8 GPIO pins can handle in the lowest speed setting?

   2 MHz

7. What RCC register would you manipulate to enable the following peripherals:
   a. TIM1 – RCC_APB2ENR[11]
   b. DMA1 – RCC_AHBENR[0]
   c. I2C1 – RCC_APB1ENR[21]