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Prelab 3

1. List two things you can learn from a peripheral's functional description in the peripheral reference manual?
   Basic theory of operation.
   Purpose of each operating mode.

2. What is the title of the first sub-section in the functional description of timers 2 and 3?
   Hint: Not mentioned in the lab manual; look it up!
   Time-base unit.

3. What is the purpose of the Prescaler (PSC) register?
   Divide the input clock frequency to the timer. It can divide by any integer value that fits a 16-bit width and is 0-indexed (count starts at 0 instead of 1).

4. What is the purpose of the Auto-Reload (ARR) register?
   Create a trigger point with a value such that when the timer hits that value, it resets and begins a new count period.

5. What is the purpose of the Capture/Compare (CCRx) register while the timer is operating in Output Compare mode?
   Measures the output of a GPIO pin whenever the timer's counter matches the value stored in the register.

6. What does the duty-cycle of a PWM signal represent?
   An analog voltage that ranges between the low and high voltages of the digital signal.

7. What is the purpose of the Alternate Function mode for a GPIO pin?
   Allow a pin to connect directly to the internal peripherals of the STM32FO board.

8. In what document can you find the documentation for what GPIO pins have which alternate functions?
   The datasheet specific to the board used.