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1. List two things you can learn from a peripheral's functional description in the peripheral reference manual?

   • Explanation of the purpose of each operating mode

   • Basic theory of operation

2. What is the title of the first sub-section in the functional description of timers 2 and 3?

   Time-base unit

3. What is the purpose of the Prescaler (PSC) register?

   The PSC register is used to divide the input clock frequency to the timer.

4. What is the purpose of the Auto-Reload (ARR) register?

   The value in the ARR register is the trigger point where the timer resets and begins to count a new period.

5. What is the purpose of the Capture/Compare (CCRx) register while the timer is operating in Output Compare mode?

   The output compare mode directly modifies the output of a GPIO pin whenever the timer's counter matches the value stored in the CCRx register. Depending on the configuration, an output compare channel can set, clear or toggle its pin on a counter match.

6. What does the duty-cycle of a PWM signal represent?

   An analog voltage ranging between the low and high voltages of the digital signal.

7. What is the purpose of the Alternate Function mode for a GPIO pin?

   Peripherals like the Timers do not have access to arbitrary pins. This system allows the user to have a few different options when selecting pins that connect to a peripheral. Because these pins have multiple alternate functions, they are shared across multiple peripherals.

8. In what document can you find the documentation for what GPIO pins have which alternate functions?

   The device datasheet document.