1. Which of the following devices is responsible for generating accurate timekeeping signals within a computer system?

A) Timers
B) Keyboard controller
C) Analog to digital converters
D) Interrupt controllers

Answer: A) Timers

Explanation: Timers are specialized circuits within a computer system that generate accurate timing signals. They are commonly used for various purposes such as scheduling tasks, measuring time intervals, and generating clock signals for synchronous operations.

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2. What component of a computer system is primarily responsible for monitoring and controlling the execution of programs, ensuring timely interrupts when necessary?

A) Watchdog timers
B) PWM
C) Real-time clock
D) Interrupt controllers

Answer: D) Interrupt controllers

Explanation: Interrupt controllers are hardware components responsible for managing

interrupt signals within a computer system. They ensure timely interruption of the CPU's normal execution flow to handle events such as I/O operations, timer expirations, and hardware errors.

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3. Which peripheral device converts continuous analog signals into digital data for processing by a computer?

A) Keyboard controller
B) Analog to digital converter
C) PWM
D) Timers

Answer: B) Analog to digital converter

Explanation: Analog to digital converters (ADCs) are used to convert analog signals, such as those from sensors or audio devices, into digital data that can be processed by a computer. This conversion allows the computer to analyze and manipulate real-world data.

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4. What hardware component is essential for regulating the duty cycle of digital signals, commonly used in applications such as controlling motor speed and LED brightness?

A) Real-time clock

B) PWM

C) Watchdog timers

D) Interrupt controllers

Answer: B) PWM

Explanation: Pulse Width Modulation (PWM) is a technique used to control the average voltage applied to a load by varying the duty cycle of a digital signal. It is commonly used in applications such as motor speed control, LED brightness adjustment, and power regulation.

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5. Which device serves as a backup power source for maintaining accurate timekeeping even when the computer system is powered off?

A) Timers

B) Watchdog timers

C) Real-time clock

D) Analog to digital converters

Answer: C) Real-time clock

Explanation: A real-time clock (RTC) is a battery-powered clock/calendar circuit that maintains accurate timekeeping even when the computer system is powered off. It is commonly used in computers and other electronic devices to track time and date information.

6. What peripheral device is primarily responsible for converting digital signals into analog signals for output to external devices such as speakers or displays?

A) Timers

B) Analog to digital converters

C) PWM

D) Digital to analog converter

Answer: D) Digital to analog converter

Explanation: Digital to analog converters (DACs) are used to convert digital signals into analog signals. They are commonly used in audio systems, display devices, and other applications where analog output is required.

7. Which component of a computer system is designed to prevent system malfunctions by resetting the system in case of software or hardware failures?

A) Timers

B) Watchdog timers

C) Interrupt controllers

D) Real-time clock

Answer: B) Watchdog timers

Explanation: Watchdog timers are hardware components that monitor the operation of a system and initiate a reset if the system fails to respond within a predefined time frame. They are commonly used to prevent system malfunctions caused by software or hardware failures.

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8. What device within a computer system is responsible for detecting and processing key presses from an input device such as a keyboard?

A) Analog to digital converters
B) Real-time clock
C) Keyboard controller
D) PWM

Answer: C) Keyboard controller

Explanation: The keyboard controller is a component within a computer system responsible for detecting and processing key presses from an input device such as a keyboard. It translates these key presses into signals that the computer's operating system can understand.

9. Which peripheral device is commonly used for generating precise and stable timing signals for controlling the execution of tasks within a computer system?

A) Interrupt controllers

B) PWM

C) Timers

D) Analog to digital converters

Answer: C) Timers

Explanation: Timers are commonly used in computer systems to generate precise and stable timing signals for various purposes such as task scheduling, event timing, and synchronization. They play a crucial role in controlling the execution of tasks within the system.

10. What hardware component is essential for managing and prioritizing external events that require immediate attention from the CPU, such as I/O operations and timer expirations?

A) Real-time clock

B) Interrupt controllers

C) Watchdog timers

D) Analog to digital converters

Answer: B) Interrupt controllers

Explanation: Interrupt controllers are hardware components responsible for managing and prioritizing external events that require immediate attention from the CPU. They ensure that the CPU responds promptly to events such as I/O operations, timer expirations, and hardware interrupts.