

- 1) What is the purpose of general-purpose registers in computer architecture, and how are they typically used?

General purpose registers are additional registers that are present in CPU which is used for either memory address or data whenever needed.

Ex:- AX, BX, CX and DX Registers

- * To hold data temporarily of arithmetic & logical operations
- * General purpose registers are used to calculate data and store addresses.
- * It is also use for temporary storage of data and memory access in CPU.

Ex:- variables, intermediate values

- 2) How does the program counter register contribute to the execution of a program in a CPU?

* PC register can manage the memory addresses of the instructions to be executed next.

- 3) What role does the status register (FLAGS) play in the CPU, and what type of information does it typically contain?

* It lets an instruction take action contingent on the outcome of a previous instruction.

* status register typically contains the information about the state of the processor.

- 4) FLAGS reg. holds the results of a arithmetic and logical operations.

- ④ Why are registers considered the fastest form of memory in a computer. and how does their speed impact overall system performance.

*Registers are temporary memory units that store data and are located in the processor, instead of in RAM, so data can be accessed and stored faster.

Tutorials ⑤

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$$V = IR$$

$$P = VI$$

① $R = 10 \Omega$
 $I = 2 \text{ A}$
 $V = ?$

$$\begin{aligned} V &= IR \\ &= 2 \times 10 \\ &= \underline{\underline{20 \text{ V}}} \end{aligned}$$

② $V = 12 \text{ V}$
 $R = 4 \Omega$
 $I = ?$

$$\begin{aligned} V &= IR \\ I &= \frac{V}{R} = \frac{12}{4} = \underline{\underline{3 \text{ A}}} \end{aligned}$$

③ $R = 50 \Omega$
 $V = 120 \text{ V}$

$$I = ?$$

$$\begin{aligned} V &= IR \\ I &= \frac{V}{R} = \frac{120 \text{ V}}{50 \Omega} = \frac{12}{5} = \underline{\underline{2.4 \text{ A}}} \end{aligned}$$

④ $I = 5 \text{ A}$
 $V = 20 \text{ V}$
 $R = ?$

$$\begin{aligned} V &= IR \\ 20 &= 5 \times R \\ R &= \frac{20}{5} = \underline{\underline{4 \Omega}} \end{aligned}$$