**COAL LAB TASKS**

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**Section: H**

**TASK#07:**

Registers are a type of computer memory used to quickly accept, store, and transfer data and instructions that are being used by the CPU. A register may hold an instruction, a storage address, or any data (such as bit sequence or individual characters).The computer needs registers for manipulating data and holding a memory address which is then used to calculate the address of the next instruction after the execution of the current instruction.

The three major functions of a register are:

1. Fetching
2. Decoding
3. Execution

**TASK#08:**

|  |  |
| --- | --- |
| AUXILIARY FLAG | CARRY FLAG |
| Auxiliary flag is set to a 1, if there is a carry out from bit 3rd to bit 4th bit. | The carry flag is set to 1, if there is a carry out of the MSB (Most Significant Bit). |
| For example:  1 1  0001 1000  +0001 1000  0011 0000 | For example:  10011  +10000  100011 |

**TASK#09:**

Data register is used for holding information (either program words or data words) that is in the process of being transferred from the memory to the central processor, or vice versa.The main function of the data register is to act as a buffer as it can store anything that can be copied from the computer memory and can be used by the processor for further operations. The data register stores the data before the data is transferred to the decoder.