SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)
COIMBATORE - 35

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING (UG & PG)

QUESTION BANK WITH ANSWER

Subject Code & Name: 19ITT202 Computer Architecture and Organization

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UNIT – I

I. 2 mark

1. What are the basic functional units of a computer?

 A computer consists of five functionally independent main parts namely

- Input Unit
- Memory Unit
- Arithmetic and logic Unit
- Output Unit
- Control Unit

2. Define RAM.

 Memory in which any location can be reached in a short and fixed amount of time after specifying its address is called random access memory.

3. Define memory access time.

 The time required to access one word is called memory access time.

4. What is instruction register (IR) and program counter (PC) used for ?

 The instruction register (IR) holds the instruction that is currently being executed .Its output is available to the control circuits which generate the timing signals that control the various processing elements.
The program counter PC) is used to keep track of the execution of the program. It contains the memory address of the next instruction to be fetched and executed.

5. What do you mean by memory address register(MAR) and memory data register(MDR)?

 The MAR holds the address of the location to be accessed. The MDR contains

6. What is an interrupt?

 An interrupt is a request from an I/O device for service by the processor. The processor provides the requested service by executing an appropriate interrupt service routine.

7. Explain about Bus.

 Bus is a group of lines that serves as a connecting path for several devices. In addition to the lines that carry the data , the bus must have the lines for address and control purposes.

8. What do you mean by multiprogramming or multitasking?

The operating system manages the concurrent execution of several application programs to make best possible use of computer resources. This pattern of concurrent execution is called multiprogramming or multitasking.

9. Give the basic performance equation.

The basic performance equation is given as

$$T = N \square S/R$$

T = It is the processor time required to execute a program
N= It is the actual number of instruction executions.
S = It is the average number of basic steps neede to execute one machine instruction.
R = It is the clock rate.

10. What are the two techniques used to increase the clock rate R?

The two techniques used to increase the clock rate R are
1. The integrated – circuit (IC) technology can be increased which reduces the time needed to complete a basic step.
2. We can reduce the amount of processing done in one basic step.

11. What is Big – Endian and Little- Endian representations.

The Big- endian is used when lower byte addresses are used for the more significant bytes (The leftmost bytes) of the word.
The little-endian is used for the opposite ordering, where the lower byte addresses are used for the less significant bytes (the rightmost bytes) of the word.

12. What is addressing mode?
   1.DIRECT ADDRESSING MODE
   2.INDIRECT ADDRESSING MODE

13. What are the different types of addressing modes available?

The different types of addressing modes available are

   $\square\square$Immediate addressing mode

   $\square\square$Register addressing mode

   $\square\square$Direct or absolute addressing mode

   $\square\square$Indirect addressing mode

   $\square\square$Indexed addressing mode

   $\square\square$Relative addressing mode

   $\square\square$Autoincrement

   $\square\square$Autodecrement

14. What is indirect addressing mode?

The effective address of the operand is the contents of a register or memory location whose address appears in the instruction

15. What is indexed addressing mode?

The effective address of the operand is generated by adding a constant value to the contents of a register.

16. Define autoincrement mode of addressing?

The effective address of the operand is the contents of a register specified in the instruction. After accessing the operand, the contents of this register are automatically incremented to point to the next item in the list.

17. Define autodecrement mode of addressing?

The contents of a register specified in the instruction are first automatically decremented and are then used as the effective address of the operand.

18. What are condition code flags? What are the commonly used flags?

The processor has to keep track of the information about the results of various operations for the subsequent conditional branch instructions. This is done by recording required information in individual bits called condition code flags. Four commonly used flags are

- N(Negative)
- Z(Zero)
- V(overflow)
- C(Carry)

19. What do you mean by assembler directives?

These are the instructions which direct the program to be executed. They have no binary equivalent so they are called pseudo-opcodes. These instructions are used to define symbols, allocate space for variable, generate fixed tables etc. Examples END, NAME

20. What do you man by relative addressing mode?

The effective address is determined by the index mode using the program counter in place of the general purpose register R_i.