**GITA AUTONOMOUS COLLEGE, BHUBANESWAR**

**COMPUTER ORGANIZATION AND ARCHITECTURE (COA)**

ASSIGNMENT-1 (UNIT-1)

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SHORT TYPE QUESTIONS:

1**. Which CPU register is responsible for sequencing the execution of instruction inside a**

**processor? Write down the difference between IR and MAR.**

***IR(Instruction Register)***

***IR: instruction register(IR) holds the instruction which is currently being executed or decoded. Its content is available for the control circuit which generates the timing signal that control the various processing element in one execution of instruction.***

***MAR: memory address register(MAR) holds the address of the location in memory, which contains data, that is required by the current instructions being executed. Simply MAR points to the memory location that contains data required.***

2. Write down the difference between auto increment and auto decrement addressing mode

with suitable examples.

***The auto increment is similar to register indirect mode of operand. Here the content of register that refers to a memory location gets incremented so that it can point to the next memory location in which the next operand gets stored***

3. Identify the addressing mode in the following instructions

a. MOV (R0),R1

b. ADD R3,20(R5)

4. Among RISC and CISC processors which one is better and why? Justify your answer.

5. What is an ARM processor? Explain its significance.

6. What is the difference between arithmetic shift and logical shift operation? Signify with

examples.

7. Give few examples of logic instructions and its working.

8. What is the use of DATA IN and DATA OUT And SIN and SOUT in input output subsystem.

9. What is mnemonics? Explain with one example.

10. Which addressing mode is called displacement addressing more and why.

LONG and FOCUSED ANSWER TYPE QUESTIONS:

1. Write a short note on the followings

a. Control Unit

b. CPU registers

c. Input-output Subsystems

d. Instruction execution cycle

e. Assembly Language

f. Memory operation

2. Memory system in computer is byte addressable, what does it mean? Differentiate big

endian and little endian representation.

3. With a neat diagram explain the basic functional units of a computer system.

4. Explain in brief about different types of computer and their significance.

5. What is addressing mode in instruction? Explain all the addressing modes with suitable

examples.

6. What do you mean by instruction set? Illustrate the difference between CISC and RISC ISA.

7. Write down the different types of instructions used inside a computer system. Elaborate

with suitable examples.

8. Explain in brief with suitable example of 3 address, 2 address, 1 address and zero address

instruction format and its significance.

9. Using CPU organization, write the sequence of steps needed to fetch and execute the

following instruction. Assume that the address of the instruction is 1000 and processor is of

CISC type. ADD A,B

10. Draw the schematic diagram of the architecture of CPU clearly showing the general purpose.

Special purpose registers and the data path. Explain the function of each component.

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11. Write down the assembly instruction in 3 address, 2 address, 1 address and 0 address

format.

a. A=T\*D-(S/U)+P

b. P=K/D+P\*I\*M

12. What is the role of bus in a computer system? Explain all the types of bus with examples.

13. Evaluate (A+B)\*(C+D) , write this the 3 address, 2 address , 1 address and zero address

format and RISC format.