Reg. No. : | | | | | | | | | | |

Question Paper Code: 49403

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2022

Elective

Electronics and Communication Engineering

14UEC903 - COMPUTER ARCHITECTURE AND ORGANIZATION

(Regulation 2014)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. The addressing mode which makes use of in-direction pointers is

   (a) Indirect addressing mode (b) Index addressing mode

   (c) Relative addressing mode (d) Offset addressing mode

2. Floating point representation is used to store

   (a) boolean values (b) whole numbers

   (c) real integers (d) integers

3. In computers, subtraction is generally carried out by

   (a) 9's complement (b) 10's complement

   (c) 1's complement (d) 2's complement

4. Pipeline implement

   (a) fetch instruction (b) decode instruction

   (c) fetch operand (d) calculate operand

5. CPU does not perform the operation

   (a) data transfer (b) logic operation

   (c) arithmetic operation (d) all the above

6. A micro program written as string of 0's and 1's is a

(a) symbolic microinstruction (b) binary microinstruction

(c) symbolic micro program (d) binary micro program

7. The techniques which move the program blocks to or from the physical memory is called as

(a) Paging (b) Virtual memory organization

(c) Overlays (d) Framing

8. The associatively mapped virtual memory makes use of

(a) Translation Look-aside Buffer (b) Page table

(c) Frame table (d) None of these

9. The computer architecture aimed at reducing the time of execution of instructions is

(a) CISC (b) RISC (c) ISA (d) ANNA

10. Interrupts which are initiated by an instruction are

(a) internal (b) external (c) hardware (d) software

PART - B (5 x 2 = 10 Marks)

11. Write the CPU performance equation.

12. What is coprocessor and what are the functions performed by the coprocessor?

13. What is an instruction pipeline?

14. Explain virtual memory.

15. What is processor time of a program?

PART - C (5 x 16 = 80 Marks)

16. (a) What are the different types of CPU organization? Explain with relevant examples. (16)

Or

(b) With examples explain the different types of instruction format. . (16)

17. (a) With relevant diagram and expressions, explain the operation of carry look ahead adder. (16)

Or

(b) Write short notes on

(i) Floating point arithmetic?

(ii) Modified booths algorithm (16)

18. (a) Explain the design of micro programmed control unit with relevant diagram. (16)

Or

(b) What is associate memory? Draw the block diagram of associate memory and explain how the read and write operations performed in associated memory. (16)

19. (a) Explain preemptive and non-preemptive memory allocation strategies in detail. (16)

Or

(b) With relevant block diagrams explain the concept of

(i) Virtual Memory (08)

(ii) Associative Memory. (08)

20. (a) Explain the IOB organization and communication between CPU and IOB. (16)

Or

(b) (i) Compare RISC and CISC. (06)

(ii) Describe the characteristics of super scalar processing. (10)