Code No. : 20330 E   Sub. Code : AMCS 42

B.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2023.

Fourth Semester

Computer Science – Core

COMPUTER ARCHITECTURE

(For those who joined in July 2020 only)

Time : Three hours   Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. The decoded instruction is stored in _____.

    (a) IR

    (b) PC

    (c) Registers

    (d) MDR

2. A source program is usually in _____.

    (a) Assembly language

    (b) Machine level language

    (c) High-level language

    (d) Natural language

3. The ALU makes use of _____ to store the intermediate results.

    (a) Accumulators

    (b) Registers

    (c) Heap

    (d) Stack

4. 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

5. Booth's Algorithm is applied on _____.

    (a) decimal numbers

    (b) binary numbers

    (c) hexadecimal numbers

    (d) octal numbers

6. Subtraction in computers is carried out by

    (a) 1's complement

    (b) 2's complement

    (c) 3's complement

    (d) 9's complement

7. Which of the following memory unit communicates directly with the CPU?

    (a) Auxiliary memory

    (b) Main memory

    (c) Secondary memory

    (d) None of the above

8. Interrupts initiated by an instruction is called as _____.

    (a) Internal   (b) External

    (c) Hardware   (d) Software

9. _____ method is used to map logical addresses of Variable length onto physical memory.

    (a) Paging

    (b) Overlays

    (c) Segmentation

    (d) Paging with segmentation

10. The DMA controller has _____ registers.

    (a) 4   (b) 2

    (c) 3   (d) 1

PART B — (5 × 5 = 25 marks)

Answer ALL questions choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Explain the phases involved in Instruction cycle with the help of necessary timing diagrams?

    Or

    (b) Describe the Common Bus system.

12. (a) Illustrate the Basie computer instruction formats with a neat sketch.

    Or

    (b) Write about control word.

13. (a) (i) Add 11011 and 10101

        (ii) Add 1111 and 0101.

    Or

    (b) Write note on floating point arithmetic with example.

14. (a) Sketch and express about DMA.

Or

(b) How Parallel Priority Interrupt works? Describe.

15. (a) Discuss the Memory Hierarchy in computer system.

Or

(b) How Cache memory works? Explain.

PART C — (5 × 8 = 40 marks)

Answer ALL questions choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Express in detail about computer registers.

Or

(b) Sketch and explain about control unit of basic computer.

17. (a) Draw and explain General register organization.

Or

(b) Illustrate addressing modes.

18. (a) Write and explain the flowchart for division.

Or

(b) Explain in detail about booth multiplication algorithm with an example?

19. (a) Draw the block diagram for I/O Bus and interface modules.

Or

(b) How data transfer from IO device to CPU takes place in a computer?

20. (a) Explain about main memory and its types.

Or

(b) Brief out the hardware organization of Associative memory with diagrams.

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