Code No. : 20097 E   Sub. Code : SMCS 32

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

Third Semester

Computer Science – Core

COMPUTER ARCHITECTURE

(For those who joined in July 2017-2019)

Time : Three hours   Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. An ———— is a group of bits that instruct the computer to perform a specific operation.

   (a) Instruction code   (b) Opcode

   (c) operation code   (d) accumulator

2. Computers that have a single processor register usually assign to it the name ————

   (a) Instruction code   (b) Opcode

   (c) operation code   (d) accumulator

3. The register that holds the address for stack is called a ————

   (a) Stack Pointer   (b) LIFO

   (c) Register stack   (d) Memory Stack

4. A collection of a finite number of flipflops is a ————

   (a) Words   (b) Register

   (c) Both (a) and (b)   (d) None

5. Which of the following format is used to store data in a computer?

   (a) BCD   (b) Octal

   (c) Decimal   (d) Hexadecimal

6. ———— Algorithm gives a procedure for multiplying binary integers in signed 2'S complement representation.

   (a) Addtion

   (b) Subtraction

   (c) Multiplication/Division

   (d) Booth

7. Input or output devices attached to the computer are also called ————

   (a) CPU   (b) ALU

   (c) Peripherals   (d) monitor

8. ———— is issued to activate the peripheral.

   (a) Control command

   (b) status command

   (c) Data input command

   (d) Data output command

9. The memory unit that communicates directly with the CPU is called ————

   (a) Main memory   (b) auxiliary memory

   (c) Cache memory   (d) multiprogramming

10. Which is the fastest memory

    (a) auxiliary   (b) virtual

    (c) cache   (d) associative

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).
Each answer should not exceed 250 words.

11. (a) Discuss about Instruction codes.

    Or

    (b) Explain Address Sequencing.

12. (a) Explain about micro operations with an example.

    Or

    (b) Explain Addressing modes.

13. (a) Short notes on hardware implementation of Division algorithm.

    Or

    (b) Comment on multiplication hardware algorithm.

14. (a) Draw the I/O bus and interface connection and Explain it.

    Or

    (b) Explain about priority interrupt.

[P.T.O.]

15. (a) Difference between RAM and ROM.

Or

(b) Describe the page replacement principle in virtual memory.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)
Each answer should not exceed 600 words.

16. (a) Discuss the types of instruction in the instruction cycle.

Or

(b) Explain about control memory.

17. (a) Explain:

(i) Register stack

(ii) Memory stacks.

Or

(b) Write a short notes on conditional branch instructions.

18. (a) Explain the Booth Multiplication Algorithm.

Or

(b) Draw a flowchart for addition and subtraction operation in floating point.

19. (a) Discuss about modes of transfer.

Or

(b) Write detail note on DMA

20. (a) Write note on main memory.

Or

(b) What is cache memory? Explain direct and set associative mapping.

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