

(6 pages)

Reg. No. :

Code No. : 10330E Sub. Code : AMCS 42

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2024.

Fourth Semester

Computer Science – Core

COMPUTER ARCHITECTURE

(For those who joined in July 2020 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer:

1. Which of the following is a group of bits that tells the computer to perform a particular operation?
 - (a) Accumulator
 - (b) Register
 - (c) Instruction code
 - (d) None of the above

2. The controller multiplexes the addresses after getting the _____ signal.
 - (a) INTR
 - (b) ACK
 - (c) RESET
 - (d) Request
3. The two phases of executing an instruction are
 - (a) Instruction decoding and storage
 - (b) Instruction fetch and instruction execution
 - (c) Instruction execution and storage
 - (d) Instruction fetch and Instruction processing
4. The addressing mode/s, which uses the PC instead of a general purpose register is _____.
 - (a) Indexed with offset
 - (b) Relative
 - (c) Direct
 - (d) Both Indexed with offset and direct
5. Which of the following is used for binary multiplication?
 - (a) Restoring Multiplication
 - (b) Booth's Algorithm
 - (c) Pascal's Rule
 - (d) Digit-by-digit multiplication

Page 2 Code No. : 10330E

6. Subtraction in computers is carried out by _____.
 - (a) 1's Complement
 - (b) 2's Complement
 - (c) 3's Complement
 - (d) 4's Complement
7. The interrupt-request line is a part of the _____.
 - (a) Data line
 - (b) Control line
 - (c) Address line
 - (d) None of the
8. Which of the following is a type of interrupt?
 - (a) I/O interrupt
 - (b) Program Interrupt
 - (c) Hardware/power failure
 - (d) All of the above
9. What memory is called separation of user logical memory and physical memory?
 - (a) Memory sharing
 - (b) Virtual memory
 - (c) Memory management
 - (d) Memory control

10. The DMA transfers are performed by a control circuit called as _____.
 - (a) Device interface
 - (b) DMA controller
 - (c) Data controller
 - (d) Overlooker

PART B — (5 × 5 = 25 marks)

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

11. (a) Describe the Instruction set Architecture of simple computer.

Or

(b) List and explain Registers for the Basic Computer.
12. (a) Write note on
 - (i) Three address instruction.
 - (ii) Two address instruction.

Or

(b) How the memory stack organization works?

Page 3 Code No. : 10330E

Page 4 Code No. : 10330E
[P.T.O.]

13. (a) (i) What is the binary addition of 1010, 1110?
(ii) Subtraction of 1100 and 0111.

Or

- (b) Hardware implementation and algorithm for division.
14. (a) How data transfer from IO device CPU takes place in a computer?

Or

- (b) Define priority interrupts. Discuss the methods of priority interrupt.
15. (a) Brief out the hardware organization of associative memory.

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) Elaborate the control unit with block diagram

Or

- (b) Write note on address sequencing.

17. (a) Draw and explain the Schematic of general register organization.

Or

- (b) Explain in detail about addressing modes.

18. (a) Draw and explain the flowchart for add and subtraction algorithm.

Or

- (b) Write in details about BOOTH multiplication algorithm.

19. (a) Describe about Handshaking.

Or

- (b) Elaborate DMA controller and its mode of data transfer.

20. (a) Illustrate the memory hierarchy.

Or

- (b) Discuss about virtual memory organization.