



1. Briefly explain about  $\alpha$ 's complement and  $(\alpha - 1)$ 's complement with examples.
2. What is the need for memory in computers? Discuss different type of memories in brief.
3. Perform the  $(+21) + (-16)$  and  $(-23) + (+13)$  arithmetic operations using 2's complement method.
4. Discuss steps involved in instruction cycle.
5. Explain about functioning of micro-programmed control unit.
6. Using Boolean algebra prove that  $(A+B) (A^1+C) = AC + A^1 B$

खण्ड-ब (बहुविकल्पीय)  
Section-B (Objective)

CSC 203 (4+0)

B.Sc. IV<sup>th</sup> SEMESTER EXAMINATION, 2023

COMPUTER SCIENCE

(Computer System Architecture)

(CBCS Mode)

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Paper ID

(To be filled in the  
OMR Sheet)

Date (तिथि) : \_\_\_\_\_

3085

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Roll No. (In Words) : \_\_\_\_\_

Time : 1 Hour

समय : 1 घण्टा

Max. Marks : 60

अधिकतम अंक : 60

नोट : पुस्तिका में 40 प्रश्न दिये गये हैं, सभी प्रश्न करने होंगे। प्रत्येक प्रश्न 1.5 अंक का होगा।

**Important Instructions :**

1. The candidate will write his/her Roll Number only at the places provided for, i.e. on the cover page and on the OMR answer sheet at the end and nowhere else.
2. Immediately on receipt of the question booklet, the candidate should check up the booklet and ensure that it contains all the pages and that no question is missing. If the candidate finds any discrepancy in the question booklet, he/she should report the invigilator within 10 minutes of the issue of this booklet and a fresh question booklet without any discrepancy be obtained.

**महत्वपूर्ण निर्देश :**

1. अभ्यर्थी अपने अनुक्रमांक केवल उन्हीं स्थानों पर लिखेंगे जो इसके लिए दिये गये हैं, अर्थात् प्रश्न पुस्तिका के मुख्य पृष्ठ तथा साथ दिये गये ओ०एम०आर० उत्तर पत्र पर, तथा अन्यत्र कहीं नहीं लिखेंगे।
2. प्रश्न पुस्तिका मिलते ही अभ्यर्थी को जाँच करके सुनिश्चित कर लेना चाहिए कि इस पुस्तिका में पूरे पृष्ठ हैं और कोई प्रश्न छूटा तो नहीं है। यदि कोई विसंगति है तो प्रश्न पुस्तिका मिलने के 10 मिनट के भीतर ही कक्ष परिप्रेक्षक को सूचित करना चाहिए और बिना त्रुटि की दूसरी प्रश्न पुस्तिका प्राप्त कर लेना चाहिए।

1. The following gates are designed as Universal Gates :
  - (A) AND, OR and NOT
  - (B) XOR, OR and AND
  - (C) XNOR, NOR, and AND
  - (D) NOR and NAND
2. Which of the following allows simultaneous write and read operations ?
  - (A) ROM
  - (B) EROM
  - (C) RAM
  - (D) None of the above
3. Which of the following computer memory is fastest ?
  - (A) Register
  - (B) Hard Disk
  - (C) RAM
  - (D) None of the above
4. Which of the following operations is/are performed by the ALU ?
  - (A) Data manipulation
  - (B) Exponential
  - (C) Square root
  - (D) All of the above
5. Computer address bus is :
  - (A) Multidirectional
  - (B) Bidirectional
  - (C) Unidirectional
  - (D) None of the above
6. Which of the following circuit is used to store one bit of data ?
  - (A) Flip Flop
  - (B) Decoder
  - (C) Encoder
  - (D) Register

7. The address in the main memory is known as :
- (A) Logical address
  - (B) Physical address
  - (C) Memory address
  - (D) None of the above
8. Subtraction in computers is carried out by :
- (A) 1's complement
  - (B) 2's complement
  - (C) 3's complement
  - (D) 9's complement
9. Which of the following is a combinational logic circuit which sends data from a single source to two or more separate destinations ?
- (A) Multiplexer
  - (B) Demultiplexer
  - (C) Encoder
  - (D) Decoder
10. Which of the following is correct about memory and storage ?
- (A) Memory is temporary, Storage is temporary
  - (B) Memory is temporary, Storage is permanent
  - (C) Memory is permanent, Storage is temporary
  - (D) Memory is slow, Storage is Fast
11. What does one thousand bytes represent ?
- (A) Kilobyte (KB)
  - (B) Megabyte (MB)
  - (C) Gigabyte (GB)
  - (D) Terabyte (TB)

12. Which of the following building block can be used to implement any combinational logic circuit ?
- (A) AND
  - (B) OR
  - (C) NAND
  - (D) None of the above
13. What does MIMD stand for ?
- (A) Multiple Instruction Memory Data
  - (B) Multiple Instruction Multiple Data
  - (C) Memory Instruction Multiple Data
  - (D) Memory Information Memory Data
14. The Program counter is also called as :
- (A) Instruction Pointer
  - (B) Data Counter
  - (C) Memory Pointer
  - (D) None of the above
15. If  $(101.01)_2 = (x)_{10}$ , then what is the value of x ?
- (A) 505.05
  - (B) 10.101
  - (C) 101.01
  - (D) 5.25
16. In Reverse Polish notation, expression  $A*B+C*D$  is written as :
- (A)  $AB*CD*+$
  - (B)  $A*BCD*+$
  - (C)  $AB*CD+*$
  - (D)  $A*B*CD+$

17. Which of the following is lowest in memory hierarchy ?
- (A) Cache memory
  - (B) Secondary memory
  - (C) Registers
  - (D) RAM
18. A group of bits that tell the computer to perform a specific operation is known as :
- (A) Instruction code
  - (B) Micro-operation
  - (C) Accumulator
  - (D) Register
19. The communication between the components in a microcomputer takes place via the address and :
- (A) I/O bus
  - (B) Data bus
  - (C) Address bus
  - (D) Control lines
20. The operation executed on data stored in registers is called :
- (A) Macro - operation
  - (B) Micro - operation
  - (C) Bit - operation
  - (D) Byte - operation
21. The 2's complement form (Use 6 bit word) of the number 1010 is :
- (A) 111100
  - (B) 110110
  - (C) 110111
  - (D) 1011

22. A register capable of shifting its binary information either to the right or the left is called a :
- (A) Parallel register
  - (B) Serial register
  - (C) Shift register
  - (D) Storage register
23. What is the content of Stack Pointer (SP) ?
- (A) Address of the current instruction
  - (B) Address of the next instruction
  - (C) Address of the top element of the stack
  - (D) Size of the stack
24. The memory unit that communicates directly with the CPU is called the :
- (A) Main memory
  - (B) Secondary memory
  - (C) Shared memory
  - (D) Auxiliary memory
25. When power is switched off which memory loses its data ?
- (A) Non-Volatile Memory
  - (B) Volatile Memory
  - (C) Both (A) and (B)
  - (D) None of the above
26. Which of the following is correct example for Auxiliary Memory ?
- (A) Magnetic disks
  - (B) Tapes
  - (C) Flash memory
  - (D) Both (A) and (B)

27. The fastest data access is provided using \_\_\_\_\_ :
- (A) Cache
  - (B) DRAM's
  - (C) SRAM's
  - (D) Registers
28. Sign bit 1 represents :
- (A) Positive number
  - (B) FALSE
  - (C) TRUE
  - (D) Negative Number
29. The m-bit parallel adder consists of :
- (A) m full adders
  - (B) m+1 full adders
  - (C) m-1 full adders
  - (D) m/2 full adders
30. What is the hexadecimal equivalent of a binary number 10101111 ?
- (A) AB
  - (B) AC
  - (C) AF
  - (D) AD
31. In a positive edge triggered JK flip flop, a low J and low K produces ?
- (A) High state
  - (B) Low state
  - (C) Toggle state
  - (D) No change

32. Which of the following is true about computer Organization ?
- (A) It deals with high-level design issues
  - (B) It involves Logic (Instruction sets, Addressing modes, Data types, Cache optimization)
  - (C) Computer Organization tells us how exactly all the units in the system are arranged and interconnected
  - (D) None of the above
33. The \_\_\_\_\_ is the computational center of the CPU :
- (A) Registers
  - (B) ALU
  - (C) Flip-Flop
  - (D) Multiplexer
34. The I/O devices are connected to the CPU via \_\_\_\_\_:
- (A) SDRAM's
  - (B) Control circuits
  - (C) Signals
  - (D) BUS
35. \_\_\_\_\_ are the different type/s of generating control signals :
- (A) Hardwired
  - (B) Micro-instruction
  - (C) Micro-programmed
  - (D) Both Micro-programmed and Hardwired
36. Which of the following is the full form of CISC ?
- (A) Complex Instruction Sequential Compilation
  - (B) Complete Instruction Sequential Compilation
  - (C) Computer Integrated Sequential Compiler
  - (D) Complex Instruction Set Computer

37. The 32 bit representation of the decimal number is called as \_\_\_\_\_.
- (A) Double-precision
  - (B) Single-precision
  - (C) Extended format
  - (D) None of the mentioned
38. If the decimal point is placed to the right of the first significant digit, then the number is called \_\_\_\_\_.
- (A) Orthogonal
  - (B) Normalized
  - (C) Determinate
  - (D) None of the mentioned
39. The sign followed by the string of digits is called as \_\_\_\_\_.
- (A) Significant
  - (B) Determinant
  - (C) Mantissa
  - (D) Exponent
40. In the memory hierarchy, as the speed of operation increases the memory size also increases :
- (A) True
  - (B) False
  - (C) Can't say
  - (D) None

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