JK

Roll No. _____

Question Booklet Number

O.M.R. Serial No. : | | | | | | | |

BCA II Semester Examination, 2025-26

COMPUTER ORGANIZATION

Paper Code
B C A 2 0 0 5 T

Question Booklet Series
C

Time : 1 : 30 Hours] **[Maximum Marks : 75**

Instructions to the Examinee :

1. Do not open the booklet unless you are asked to do so.
2. The booklet contains 100 questions. Examinee is required to answer 75 questions in the OMR Answer-Sheet provided and not in the question booklet. **All** questions carry equal marks.
3. Examine the Booklet and the OMR Answer-Sheet very carefully before you proceed. Faulty question booklet due to missing or duplicate pages/questions or having any other discrepancy should be got immediately replaced.
4. Four alternative answers are mentioned for each question as – A, B, C & D in the booklet. The candidate has to choose the correct answer and mark the same in the OMR Answer-Sheet as per the direction :

(Remaining instructions on the last page)

परीक्षार्थियों के लिए निर्देश :

1. प्रश्न-पुस्तिका को तब तक न खोलें जब तक आपसे कहा न जाए।
2. प्रश्न-पुस्तिका में 100 प्रश्न हैं। परीक्षार्थी को 75 प्रश्नों को केवल दी गई OMR आन्सर-शीट पर ही हल करना है, प्रश्न-पुस्तिका पर नहीं। **सभी** प्रश्नों के अंक समान हैं।
3. प्रश्नों के उत्तर अंकित करने से पूर्व प्रश्न-पुस्तिका तथा OMR आन्सर-शीट को सावधानीपूर्वक देख लें। दोषपूर्ण प्रश्न-पुस्तिका जिसमें कुछ भाग छपने से छूट गये हों या प्रश्न एक से अधिक बार छप गए हों या उसमें किसी अन्य प्रकार की कमी हो, तो उसे तुरन्त बदल लें।
4. प्रश्न-पुस्तिका में प्रत्येक प्रश्न के चार सम्भावित उत्तर- A, B, C तथा D हैं। परीक्षार्थी को उन चारों विकल्पों में से सही उत्तर छाँटना है। उत्तर को OMR उत्तर-पत्रक में सम्बन्धित प्रश्न संख्या में निम्न प्रकार भरना है :

(शेष निर्देश अन्तिम पृष्ठ पर)

Rough Work

1. Computer organization deals with:
   (A) Programming languages
   (B) Software Development
   (C) Internal structure and operation of a computer system
   (D) Network design
2. What is a cache hit?
   (A) Data not found in cache
   (B) Memory error
   (C) Cache failure
   (D) Data found in cache
3. Which of the following is an example of an output device?
   (A) Scanner
   (B) Monitor
   (C) Keyboard
   (D) None of the Above
4. Virtual memory is managed by:
   (A) Compiler
   (B) Operating System
   (C) Hardware only
   (D) User program
5. What is the main advantage of virtual memory:
   (A) Faster CPU processing
   (B) Better memory utilization
   (C) Eliminates OS
   (D) Reduces program size
6. EEPROM stands for:
   (A) Electrically Erasable Programmable Read Only Memory
   (B) Electronically Erased Programmable ROM
   (C) Electrical Erasable Permanent ROM
   (D) Easy Erasable Programmable ROM
7. Which RAM is faster?
   (A) DRAM
   (B) SRAM
   (C) ROM
   (D) PROM
8. RAM stands for:
   (A) Read Access Memory
   (B) Random Access Memory
   (C) Read Available Memory
   (D) Run Access Memory

9. Which memory lies between CPU and main memory?
   (A) Hard Disk
   (B) Cache Memory
   (C) ROM
   (D) Optical Disk
10. Which level of memory hierarchy is the slowest?
   (A) Registers
   (B) Cache
   (C) Main Memory
   (D) Secondary Memory
11. Which memory is volatile?
   (A) ROM
   (B) Hard Disk
   (C) RAM
   (D) CD-ROM
12. Cache memory is used to:
   (A) Store permanent data
   (B) Speed up memory access
   (C) Replace RAM
   (D) Store programs only
13. Which of the following has the largest storage capacity?
   (A) Cache
   (B) Registers
   (C) Hard Disk
   (D) RAM
14. DMA stands for:
   (A) Direct Memory Access
   (B) Data Memory Allocation
   (C) Device Management Access
   (D) Dynamic Memory Access
15. Which of the following is an example of an input device?
   (A) Printer
   (B) Monitor
   (C) Keyboard
   (D) Speaker
16. The base of binary number is:
   (A) 2
   (B) 8
   (C) 10
   (D) 16
17. Which of the following is an arithmetic data manipulation instruction?
   (A) STORE
   (B) MOV
   (C) LOAD
   (D) ADD

18. Data manipulation instructions are used to:
    (A) Move data
    (B) Perform arithmetic and logical operations
    (C) Store instructions
    (D) Transfer programs
19. The instruction STORE is used to:
    (A) Transfer data from register to memory
    (B) Transfer data from memory to register
    (C) Add two numbers
    (D) Compare data
20. Which of the following is a data transfer instruction?
    (A) ADD
    (B) SUB
    (C) MOV
    (D) MUL
21. Data transfer instructions are used to:
    (A) Perform arithmetic operations
    (B) Move data from one location to another
    (C) Store programs
    (D) Control input devices
22. Instruction format helps in:
    (A) Efficient instruction execution
    (B) Memory management
    (C) Data encryption
    (D) Power control
23. Zero-address instruction format is used in:
    (A) Register-based architecture
    (B) Stack-based architecture
    (C) Memory-based architecture
    (D) Cache architecture
24. Instruction format refers to:
    (A) The layout of bits in an instruction
    (B) The size of memory
    (C) The type of operating system
    (D) The speed of CPU
25. An instruction in a computer generally consists of:
    (A) Memory and Register
    (B) Input and output
    (C) Opcode and operand
    (D) Address and program

26. Which addressing mode uses program counter (PC) to calculate the effective address?
    (A) Register addressing
    (B) Relative addressing
    (C) Immediate addressing
    (D) Direct addressing
27. Which addressing mode is fastest because the operand is already present in the instruction?
    (A) Immediate Addressing Mode
    (B) Direct Addressing Mode
    (C) Indirect Addressing Mode
    (D) Indexed Addressing Mode
28. In Direct Addressing Mode, the address field of the instruction contains:
    (A) Operand itself
    (B) Register number
    (C) Memory address of the operand
    (D) Instruction code
29. Addressing mode refers to:
    (A) The way of specifying the operand in an instruction
    (B) The way of storing data in memory
    (C) The way of executing programs
    (D) The way of connecting devices
30. Which instruction set architecture uses stack organization?
    (A) Stack-based architecture
    (B) Register-based architecture
    (C) Memory-based architecture
    (D) Hybrid architecture
31. Shift registers are widely used in:
    (A) Data storage
    (B) Data transfer
    (C) Digital communication
    (D) All of the above
32. Which shift register converts parallel data into serial data?
    (A) SISO
    (B) SIPO
    (C) PISO
    (D) PIPO
33. Which type of shift register accepts serial input and gives serial output?
    (A) SISO
    (B) SIPO
    (C) PISO
    (D) PIPO

34. Shift Register is used to:

(A) Perform arithmetic operation

(B) Compare numbers

(C) Store and shift binary data

(D) Convert analog signals

35. A MOD-8 counter requires how many flip-flops?

(A) 2

(B) 3

(C) 4

(D) 8

36. Which counter is also known as asynchronous counter?

(A) Ring counter

(B) Ripple counter

(C) Johnson counter

(D) Decade counter

37. A synchronous counter is one in which:

(A) All flip-flops are triggered by the same clock pulse

(B) Only one flip-flop receives clock

(C) No clock is used

(D) Flip-flops work independently

38. Counters are mainly built using:

(A) Logic gates only

(B) Flip-Flops

(C) Multiplexers

(D) Decoders

39. The T Flip-Flop is also known as:

(A) Toggle Flip-Flop

(B) Time Flip-Flop

(C) Transfer Flip-Flop

(D) Temporary Flip-Flop

40. When J = 1 and K = 1, the output will:

(A) Set

(B) Reset

(C) Toggle

(D) No change

41. When J = 0 and K = 0, the output of JK Flip-Flop will:

(A) Reset

(B) Set

(C) Toggle

(D) No change

42. The JK Flip-Flop is an improvement over:

(A) D Flip-Flop

(B) SR Flip-Flop

(C) T Flip-Flop

(D) Master-Slave Flip-Flop

43. The D Flip-Flop eliminates the invalid state of which flip-flop?

(A) JK Flip-Flop

(B) SR Flip-Flop

(C) T Flip-Flop

(D) Master-Slave Flip-Flop

44. In an SR Flip-Flop, the inputs S and R stand for:

(A) Save and Restore

(B) Start and Run

(C) Set and Reset

(D) Signal and Response

45. The SR Flip-Flop has how many inputs?

(A) 1

(B) 2

(C) 3

(D) 4

46. Flip-Flop can store how many bits of information?

(A) 1 bit

(B) 2 bits

(C) 4 bits

(D) 8 bits

47. Flip-Flop is a:

(A) Combinational circuit

(B) Sequential circuit

(C) Arithmetic circuit

(D) Logic gate

48. Multiplexer is mainly used for:

(A) Data routing

(B) Data storage

(C) Data subtraction

(D) Data comparison

49. How many selection lines are required for a 4-to-1 multiplexer?

(A) 1

(B) 2

(C) 3

(D) 4

50. Multiplexer is also known as:

(A) Data decoder

(B) Data comparator

(C) Data encoder

(D) Data selector

51. Multiplexer is a combinational circuit that:

(A) Store data Memory

(B) Converts binary to decimal

(C) Selects one input from many inputs and sends it to a single output

(D) Compares two numbers

52. Which additional input is often used in a decoder to control operation?

(A) Enable input

(B) Clock input

(C) Reset input

(D) Carry input

53. 4-to-16 line decoder will have:

(A) 4 inputs and 16 outputs

(B) 16 inputs and 4 outputs

(C) 8 inputs and 16 outputs

(D) 4 inputs and 8 outputs

54. Decoder is a combinational circuit that converts:

(A) n input lines into 2^n output lines

(B) 2^n input lines into n output lines

(C) Binary to decimal manually

(D) Analog signals to digital signals

55. In a 1-bit comparator, if A = 1 and B = 0, the output is:

(A) A < B

(B) A > B

(C) A = B

(D) No output

56. A magnitude comparator compares two numbers and indicates:

(A) Equal only

(B) Greater only

(C) Less only

(D) Greater than, Less than, or Equal

57. Code converters are implemented using:

(A) Sequential circuits

(B) Combinational circuits

(C) Flip-flops

(D) Counters

58. Which of the following is an example of code conversion?

(A) Binary to Gray code

(B) Binary addition

(C) Binary subtraction

(D) Binary multiplication

59. A Full Subtractor subtracts how many bits?

(A) Two bits

(B) Three bits

(C) Four bits

(D) One bit

60. The Difference output of a Half Subtractor is obtained using:

(A) AND gate

(B) OR gate

(C) XOR gate

(D) NAND gate

61. The outputs of a Half Subtractor are:

(A) Sum and Carry

(B) Product and Sum

(C) Input and Output

(D) Difference and Borrow

62. Which type of adder adds binary numbers of multiple bits?

(A) Parallel Adder

(B) Half Adder

(C) Serial Adder

(D) Comparator

63. The outputs of a Half Adder are:

(A) Sum and Difference

(B) Input and Output

(C) Carry and Borrow

(D) Sum and Carry

64. Full Adder adds:

(A) Two input bits

(B) Three input bits

(C) Four input bits

(D) One input bit

65. Which circuit compares two binary numbers?

(A) Comparator

(B) Encoder

(C) Decoder

(D) Multiplexer

66. Combinational circuits do not contain:

(A) Logic gates

(B) Memory elements

(C) Boolean functions

(D) Inputs and outputs

67. Which of the following is a combinational circuit?
    (A) Flip-Flop
    (B) Counter
    (C) Register
    (D) Multiplexer
68. A combinational circuit is a circuit whose output depends on:
    (A) Present input only
    (B) Previous input only
    (C) Both present and previous inputs
    (D) Clock signal only
69. In K-Map simplification, Don't Care conditions can be treated as:
    (A) Only 0
    (B) Only 1
    (C) Either 0 or 1 depending on simplification
    (D) Always ignored
70. The main advantage of K-Map is:
    (A) Faster memory access
    (B) Simplification of Boolean functions
    (C) Error detection
    (D) Data encryption
71. The largest possible group in a K-Map should be:
    (A) 2^n cells
    (B) 3^n cells
    (C) 7^n cells
    (D) Any number of cells
72. A 4-variable K-Map contains how many cells?
    (A) 8
    (B) 12
    (C) 16
    (D) 32
73. How many inputs does a NOT gate have?
    (A) Four
    (B) Two
    (C) Three
    (D) One
74. Which gate is also considered a universal gate?
    (A) NOR
    (B) AND
    (C) XOR
    (D) NOT
75. The NOT gate is also known as:
    (A) Inverter
    (B) Comparator
    (C) Encoder
    (D) Decoder

76. Which logic gate produces HIGH output when at least one input is HIGH?
    (A) OR Gate
    (B) AND Gate
    (C) NAND Gate
    (D) NOR Gate
77. NAND gate is a combination of:
    (A) AND + OR
    (B) AND + NOT
    (C) OR + NOT
    (D) XOR + NOT
78. A sum term in Boolean algebra is formed using:
    (A) OR operation
    (B) AND operation
    (C) NOT operation
    (D) NAND operation
79. POS stands for:
    (A) Product of Sum
    (B) Product of Signals
    (C) Power of Sum
    (D) Parallel of Sum
80. Which law states that (A+B)+C=A+(B+C)?
    (A) Commutative Law
    (B) Associative Law
    (C) Distributive Law
    (D) Absorption Law
81. Booth's multiplication algorithm works efficiently with:
    (A) Unsigned numbers only
    (B) Signed numbers in 2's complement form
    (C) Decimal numbers
    (D) BCD numbers
82. Booth's algorithm is used for:
    (A) Floating point multiplication
    (B) Decimal multiplication
    (C) Division of binary numbers
    (D) Signed binary multiplication
83. Which of the following is a logical operation performed by ALSU?
    (A) ADD
    (B) SUB
    (C) AND
    (D) SHIFT
84. Which shift operation moves bits to the left side and inserts 0 in the LSB?
    (A) Logical shift right
    (B) Logical shift left
    (C) Arithmetic shift right
    (D) Circular shift
85. The main function of an ALSU is to perform:
    (A) Only arithmetic operations
    (B) Only logic operations
    (C) Arithmetic, logic and shift operations
    (D) Only shift operations

86. ALSU stands for:

(A) Arithmetic Logic Storage Unit

(B) Arithmetic Logic Shift Unit

(C) Arithmetic Load Storage Unit

(D) Arithmetic Link Shift Unit

87. What does UVEPROM stand for?

(A) Ultra Voltage Erasable Programmable Read-Only Memory

(B) Ultra violet Erasable Programmable Read-Only Memory

(C) Universal Variable Erasable Programmable Read-Only Memory

(D) User Volatile Erasable Programmable Read-Only Memory

88. De Morgan's Theorem states that:

(A) (A+(B)' = A'B'

(B) A + A = A

(C) A + 0 = A

(D) A.A = A

89. Which number system has a base 16

(A) Hexadecimal

(B) Octal

(C) Binary

(D) Decimal

90. Which bus is used to transfer data between CPU, memory and I/O devices?

(A) Control Bus

(B) Address Bus

(C) Data Bus

(D) System Bus

91. A bus in computer organization is:

(A) A storage device

(B) A communication pathway between components

(C) A processing unit

(D) A type of register

92. RTL is mainly used in:

(A) Database systems

(B) Networking

(C) Computer architecture design

(D) High-level programming

93. Which of the following is NOT typically classified as a basic RTL micro-operation category?

(A) High-level language compilation operations

(B) Shift micro-operations

(C) Logic micro-operations

(D) Arithmetic micro-operations

94. The operation R1 ← R1 + R2 is called:

(A) Register transfer

(B) Logical micro-operation

(C) Shift micro-operation

(D) Arithmetic micro-operation

95. The transfer R2 ← R2 + 1 represent:

(A) Increment operation

(B) Decrement operation

(C) Clear operation

(D) Shift operation

96. A common bus system can be constructed using which of the following components?

(A) Only flip-flops.

(B) Multiplexers or Three-state gates.

(C) Only AND gates.

(D) Operational Amplifiers.

97. Which component performs arithmetic operations in RTL?

(A) Memory

(B) ALU

(C) Register

(D) Control Unit

98. Which of the following represents a conditional register transfer?

(A) P : R1 ← R2

(B) R2 ← R1 + R3

(C) R1 ← R2

(D) None of the Above

99. What does a Register Transfer Language (RTL) primarily define?

(A) The syntax of high-level programming languages like C++.

(B) The symbolic notation used to describe the micro-operation sequences between registers.

(C) The physical layout of transistors on a microprocessor chip.

(D) The thermal design power of a CPU.

100. Which symbol is standard in RTL to represent the transfer of information from a source register to a destination register?

(A) =

(B) ←

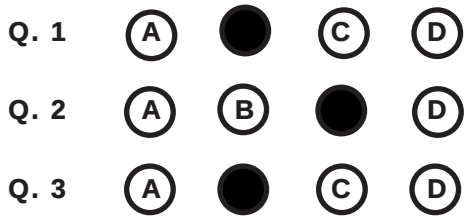
(C) ==

(D) >>

Rough Work

Example :

Question :

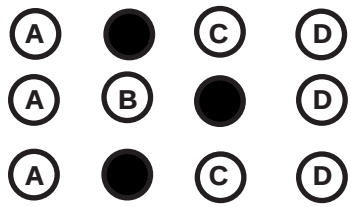


5. Each question carries equal marks. Marks will be awarded according to the number of correct answers you have.
6. All answers are to be given on OMR Answer Sheet only. Answers given anywhere other than the place specified in the answer sheet will not be considered valid.
7. Before writing anything on the OMR Answer Sheet, all the instructions given in it should be read carefully.
8. After the completion of the examination candidates should leave the examination hall only after providing their OMR Answer Sheet to the invigilator. Candidate can carry their Question Booklet.
9. There will be no negative marking.
10. Rough work, if any, should be done on the blank pages provided for the purpose in the booklet.
11. To bring and use of log-book, calculator, pager & cellular phone in examination hall is prohibited.
12. In case of any difference found in English and Hindi version of the question, the English version of the question will be held authentic.

Impt. On opening the question booklet, first check that all the pages of the question booklet are printed properly. If there is any discrepancy in the question booklet, then after showing it to the invigilator, get another question booklet of the same series.

उदाहरण :

प्रश्न :



5. प्रत्येक प्रश्न के अंक समान हैं। आपके जितने उत्तर सही होंगे, उन्हीं के अनुसार अंक प्रदान किये जायेंगे।
6. सभी उत्तर केवल ओ.एम.आर. उत्तर-पत्रक (OMR Answer Sheet) पर ही दिये जाने हैं। उत्तर-पत्रक में निर्धारित स्थान के अलावा अन्यत्र कहीं पर दिया गया उत्तर मान्य नहीं होगा।
7. ओ.एम.आर. उत्तर-पत्रक (OMR Answer Sheet) पर कुछ भी लिखने से पूर्व उसमें दिये गये सभी अनुदेशों को सावधानीपूर्वक पढ़ लिया जाये।
8. परीक्षा समाप्ति के उपरान्त परीक्षार्थी कक्ष निरीक्षक को अपनी OMR Answer Sheet उपलब्ध कराने के बाद ही परीक्षा कक्ष से प्रस्थान करें। परीक्षार्थी अपने साथ प्रश्न-पुस्तिका ले जा सकते हैं।
9. निगेटिव मार्किंग नहीं है।
10. कोई भी रफ कार्य, प्रश्न-पुस्तिका में, रफ-कार्य के लिए दिए खाली पेज पर ही किया जाना चाहिए।
11. परीक्षा कक्ष में लॉग-बुक, कैल्कुलेटर, पेजर तथा सेल्युलर फोन ले जाना तथा उसका उपयोग करना वर्जित है।
12. प्रश्न के हिन्दी एवं अंग्रेजी रूपान्तरण में भिन्नता होने की दशा में प्रश्न का अंग्रेजी रूपान्तरण ही मान्य होगा।

महत्वपूर्ण : प्रश्न-पुस्तिका खोलने पर प्रथमतः जाँच कर देख लें कि प्रश्न-पुस्तिका के सभी पृष्ठ भलीभाँति छपे हुए हैं। यदि प्रश्न-पुस्तिका में कोई कमी हो, तो कक्षनिरीक्षक को दिखाकर उसी सीरीज की दूसरी प्रश्न-पुस्तिका प्राप्त कर लें।