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
B

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. Multiplexer is also known as:
   (A) Data decoder
   (B) Data comparator
   (C) Data encoder
   (D) Data selector
2. How many selection lines are required for a 4-to-1 multiplexer?
   (A) 1
   (B) 2
   (C) 3
   (D) 4
3. Multiplexer is mainly used for:
   (A) Data routing
   (B) Data storage
   (C) Data subtraction
   (D) Data comparison
4. Flip-Flop is a:
   (A) Combinational circuit
   (B) Sequential circuit
   (C) Arithmetic circuit
   (D) Logic gate
5. Flip-Flop can store how many bits of information?
   (A) 1 bit
   (B) 2 bits
   (C) 4 bits
   (D) 8 bits
6. The SR Flip-Flop has how many inputs?
   (A) 1
   (B) 2
   (C) 3
   (D) 4
7. 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
8. 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
9. 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

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

(A) Reset

(B) Set

(C) Toggle

(D) No change

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

(A) Set

(B) Reset

(C) Toggle

(D) No change

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

(A) Toggle Flip-Flop

(B) Time Flip-Flop

(C) Transfer Flip-Flop

(D) Temporary Flip-Flop

13. Counters are mainly built using:

(A) Logic gates only

(B) Flip-Flops

(C) Multiplexers

(D) Decoders

14. 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

15. Which counter is also known as asynchronous counter?

(A) Ring counter

(B) Ripple counter

(C) Johnson counter

(D) Decade counter

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

(A) 2

(B) 3

(C) 4

(D) 8

17. Shift Register is used to:

(A) Perform arithmetic operation

(B) Compare numbers

(C) Store and shift binary data

(D) Convert analog signals

18. Which type of shift register accepts serial input and gives serial output?
    (A) SISO
    (B) SIPO
    (C) PISO
    (D) PIPO
19. Which shift register converts parallel data into serial data?
    (A) SISO
    (B) SIPO
    (C) PISO
    (D) PIPO
20. Shift registers are widely used in:
    (A) Data storage
    (B) Data transfer
    (C) Digital communication
    (D) All of the above
21. Which instruction set architecture uses stack organization?
    (A) Stack-based architecture
    (B) Register-based architecture
    (C) Memory-based architecture
    (D) Hybrid architecture
22. 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
23. 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
24. 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
25. Which addressing mode uses program counter (PC) to calculate the effective address?
    (A) Register addressing
    (B) Relative addressing
    (C) Immediate addressing
    (D) Direct addressing

26. An instruction in a computer generally consists of:
    (A) Memory and Register
    (B) Input and output
    (C) Opcode and operand
    (D) Address and program
27. 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
28. Zero-address instruction format is used in:
    (A) Register-based architecture
    (B) Stack-based architecture
    (C) Memory-based architecture
    (D) Cache architecture
29. Instruction format helps in:
    (A) Efficient instruction execution
    (B) Memory management
    (C) Data encryption
    (D) Power control
30. 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
31. Which of the following is a data transfer instruction?
    (A) ADD
    (B) SUB
    (C) MOV
    (D) MUL
32. 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
33. Data manipulation instructions are used to:
    (A) Move data
    (B) Perform arithmetic and logical operations
    (C) Store instructions
    (D) Transfer programs

34. Which of the following is an arithmetic data manipulation instruction?

(A) STORE

(B) MOV

(C) LOAD

(D) ADD

35. The base of binary number is:

(A) 2

(B) 8

(C) 10

(D) 16

36. Which of the following is an example of an input device?

(A) Printer

(B) Monitor

(C) Keyboard

(D) Speaker

37. DMA stands for:

(A) Direct Memory Access

(B) Data Memory Allocation

(C) Device Management Access

(D) Dynamic Memory Access

38. Which of the following has the largest storage capacity?

(A) Cache

(B) Registers

(C) Hard Disk

(D) RAM

39. Cache memory is used to:

(A) Store permanent data

(B) Speed up memory access

(C) Replace RAM

(D) Store programs only

40. Which memory is volatile?

(A) ROM

(B) Hard Disk

(C) RAM

(D) CD-ROM

41. Which level of memory hierarchy is the slowest?

(A) Registers

(B) Cache

(C) Main Memory

(D) Secondary Memory

42. Which memory lies between CPU and main memory?

(A) Hard Disk

(B) Cache Memory

(C) ROM

(D) Optical Disk

43. RAM stands for:

(A) Read Access Memory

(B) Random Access Memory

(C) Read Available Memory

(D) Run Access Memory

44. Which RAM is faster?

(A) DRAM

(B) SRAM

(C) ROM

(D) PROM

45. 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

46. What is the main advantage of virtual memory:

(A) Faster CPU processing

(B) Better memory utilization

(C) Eliminates OS

(D) Reduces program size

47. Virtual memory is managed by:

(A) Compiler

(B) Operating System

(C) Hardware only

(D) User program

48. Which of the following is an example of an output device?

(A) Scanner

(B) Monitor

(C) Keyboard

(D) None of the Above

49. What is a cache hit?

(A) Data not found in cache

(B) Memory error

(C) Cache failure

(D) Data found in cache

50. Computer organization deals with:

(A) Programming languages

(B) Software Development

(C) Internal structure and operation of a computer system

(D) Network design

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

(A) =

(B) $\leftarrow$

(C) ==

(D) >>

52. 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.

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

(A) P : R1 $\leftarrow$ R2

(B) R2 $\leftarrow$ R1 + R3

(C) R1 $\leftarrow$ R2

(D) None of the Above

54. Which component performs arithmetic operations in RTL?

(A) Memory

(B) ALU

(C) Register

(D) Control Unit

55. 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.

56. The transfer R2 $\leftarrow$ R2 + 1 represent:

(A) Increment operation

(B) Decrement operation

(C) Clear operation

(D) Shift operation

57. The operation R1 $\leftarrow$ R1 + R2 is called:

(A) Register transfer

(B) Logical micro-operation

(C) Shift micro-operation

(D) Arithmetic micro-operation

58. 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

59. RTL is mainly used in:
    (A) Database systems
    (B) Networking
    (C) Computer architecture design
    (D) High-level programming

60. 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

61. 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

62. Which number system has a base 16
    (A) Hexadecimal
    (B) Octal
    (C) Binary
    (D) Decimal

63. De Morgan's Theorem states that:
    (A) (A+(B)' = A'B'
    (B) A + A = A
    (C) A + 0 = A
    (D) A.A = A

64. 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

65. ALSU stands for:
    (A) Arithmetic Logic Storage Unit
    (B) Arithmetic Logic Shift Unit
    (C) Arithmetic Load Storage Unit
    (D) Arithmetic Link Shift Unit

66. 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
67. 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
68. Which of the following is a logical operation performed by ALSU?
    (A) ADD
    (B) SUB
    (C) AND
    (D) SHIFT
69. Booth's algorithm is used for:
    (A) Floating point multiplication
    (B) Decimal multiplication
    (C) Division of binary numbers
    (D) Signed binary multiplication
70. 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
71. Which law states that (A+B)+C=A+(B+C)?
    (A) Commutative Law
    (B) Associative Law
    (C) Distributive Law
    (D) Absorption Law
72. POS stands for:
    (A) Product of Sum
    (B) Product of Signals
    (C) Power of Sum
    (D) Parallel of Sum
73. A sum term in Boolean algebra is formed using:
    (A) OR operation
    (B) AND operation
    (C) NOT operation
    (D) NAND operation
74. NAND gate is a combination of:
    (A) AND + OR
    (B) AND + NOT
    (C) OR + NOT
    (D) XOR + NOT
75. 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

76. The NOT gate is also known as:
    (A) Inverter
    (B) Comparator
    (C) Encoder
    (D) Decoder
77. Which gate is also considered a universal gate?
    (A) NOR
    (B) AND
    (C) XOR
    (D) NOT
78. How many inputs does a NOT gate have?
    (A) Four
    (B) Two
    (C) Three
    (D) One
79. A 4-variable K-Map contains how many cells?
    (A) 8
    (B) 12
    (C) 16
    (D) 32
80. 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
81. The main advantage of K-Map is:
    (A) Faster memory access
    (B) Simplification of Boolean functions
    (C) Error detection
    (D) Data encryption
82. 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
83. 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
84. Which of the following is a combinational circuit?
    (A) Flip-Flop
    (B) Counter
    (C) Register
    (D) Multiplexer

85. Combinational circuits do not contain:

(A) Logic gates

(B) Memory elements

(C) Boolean functions

(D) Inputs and outputs

86. Which circuit compares two binary numbers?

(A) Comparator

(B) Encoder

(C) Decoder

(D) Multiplexer

87. Full Adder adds:

(A) Two input bits

(B) Three input bits

(C) Four input bits

(D) One input bit

88. The outputs of a Half Adder are:

(A) Sum and Difference

(B) Input and Output

(C) Carry and Borrow

(D) Sum and Carry

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

(A) Parallel Adder

(B) Half Adder

(C) Serial Adder

(D) Comparator

90. The outputs of a Half Subtractor are:

(A) Sum and Carry

(B) Product and Sum

(C) Input and Output

(D) Difference and Borrow

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

(A) AND gate

(B) OR gate

(C) XOR gate

(D) NAND gate

92. A Full Subtractor subtracts how many bits?

(A) Two bits

(B) Three bits

(C) Four bits

(D) One bit

93. Which of the following is an example of code conversion?
    (A) Binary to Gray code
    (B) Binary addition
    (C) Binary subtraction
    (D) Binary multiplication

94. Code converters are implemented using:
    (A) Sequential circuits
    (B) Combinational circuits
    (C) Flip-flops
    (D) Counters

95. A magnitude comparator compares two numbers and indicates:
    (A) Equal only
    (B) Greater only
    (C) Less only
    (D) Greater than, Less than, or Equal

96. 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

97. 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

98. 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

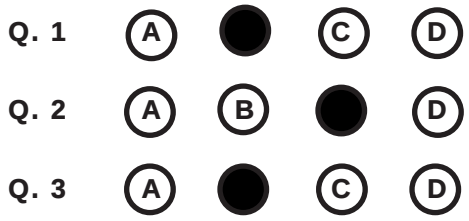
99. Which additional input is often used in a decoder to control operation?
    (A) Enable input
    (B) Clock input
    (C) Reset input
    (D) Carry input

100. 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

Rough Work

Example :

Question :

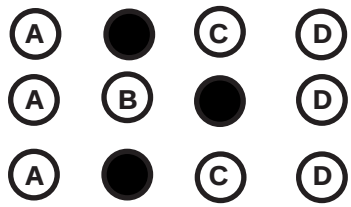


5. Each question carries equal marks. Marks will be awarded according to the number of correct answers you have.
6. All answers are to be given on OMR Answer Sheet only. Answers given anywhere other than the place specified in the answer sheet will not be considered valid.
7. Before writing anything 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।