

Roll. No.

O.M.R. Serial No.

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Question Booklet Number

200064

BCA (SEM.-II) (NON-NEP) EXAMINATION, 2024
COMPUTER APPLICATION
(Digital Electronics & Computer Organization)

[BCA-202 (N)]

Paper Code							
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Question Booklet

Series

D

Time : 1 : 30 Hours

Max. 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 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 गए हों या प्रश्न एक से अधिक बार छप गए हों या उसमें किसी अन्य प्रकार की कमी हो, उसे तुरन्त बदल लें।
4. प्रश्न-पुस्तिका में प्रत्येक प्रश्न के चार सम्भावित उत्तर- A, B, C एवं 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)

1. What is the base of binary in number system ?
 (A) 4
 (B) 8
 (C) 5
 (D) 2
2. BCD counter is also known as :
 (A) Parallel counter
 (B) Decade counter
 (C) Synchronous counter
 (D) VLSI counter
3. The no-change conditions occur when _____ in JK flip flop.
 (A) $J=1, K=1$
 (B) $J=0, K=0$
 (C) $J=1, K=0$
 (D) $J=0, K=1$
4. A digital circuit that can store only one bit is a :
 (A) NOR gate
 (B) OR gate
 (C) Flip flop
 (D) XOR gate
5. DeMorgan's Law state that :
 (A) $(A+B)' = A'B$
 (B) $(AB)' = A' + B'$
 (C) $(AB)' = A' + B$
 (D) $(AB)' = A + B$
6. One nibble is equal to how many bits?
 (A) 4
 (B) 2
 (C) 16
 (D) 8
7. The primary difference between a counter and a register is :
 (A) A register counts data
 (B) A register has no specific sequence of states
 (C) A counter has no particular sequence of states
 (D) None of the above
8. A shift register is defined as :
 (A) The register capable of shifting information to another register
 (B) The register capable of shifting information either to the right or to the left
 (C) The register capable of shifting information to the right only
 (D) The register capable of shifting information to the left only

9. Don't care conditions can be used for simplifying Boolean expressions in :
- (A) Registers
 - (B) Terms
 - (C) Latches
 - (D) K-map
10. Simplify the expression using K-maps:
 $F(A,B,C,D) = \sum m(0,1,2,4,5,8,10)$:
- (A) $A'D' + AB$
 - (B) $A'D' + CD$
 - (C) $A'B' + B'C'$
 - (D) $B'D' + A'C'$
11. Simplify the expression using K-maps:
 $F(A,B,C,D) = \prod M(0,1,2,3,4,7)$
- (A) $(B+C)(B+D)(A+C)$
 - (B) $(A)(B+C)(B' + C')$
 - (C) $(D)(A+B')$
 - (D) $(A)(B+C)(D)$
12. A decoder converts n inputs to _____ outputs.
- (A) n
 - (B) n^2
 - (C) 2^n
 - (D) n^n
13. Which of the following represents a number of output lines for a decoder with 4 input lines?
- (A) 15
 - (B) 10
 - (C) 12
 - (D) 16
14. In Digital Circuits, which of the following options represent the synchronous control inputs in a T flip flop?
- (A) T
 - (B) 0
 - (C) Clock
 - (D) 1
15. Which are the following flip flop ?
- (A) S-R
 - (B) J-K
 - (C) D
 - (D) All of the above
16. Which is not following flip flop ?
- (A) M
 - (B) J-K
 - (C) D
 - (D) T

17. What are the basic gates?
- (A) AND
 - (B) OR
 - (C) NOT
 - (D) All of the above
18. 16 to 1 MUX would have :
- (A) 2 output
 - (B) 3 output
 - (C) 1 output
 - (D) 6 output
19. What must be the input given to "R" when SR flip – flop is converted to JK flip – flop?
- (A) $K.Q'$
 - (B) $K.Q$
 - (C) $J.Q$
 - (D) $J.Q'$
20. The full form of ALU :
- (A) Another Logic Unit
 - (B) Amongst Large Unit
 - (C) Arithmetic Logical Unit
 - (D) All Local Unit
21. What is range of decimal in number system ?
- (A) (0 to 9)
 - (B) (0 to 12)
 - (C) (0 to 13)
 - (D) (0 to 15)
22. What is range of octal in number system ?
- (A) (0 to 9)
 - (B) (0 to 7)
 - (C) (0 to 10)
 - (D) (0 to 11)
23. The representation of 'A' in Hexadecimal number by :
- (A) 12
 - (B) 66
 - (C) 10
 - (D) 16
24. The Boot sector files of the system are stored in which computer memory?
- (A) RAM
 - (B) ROM
 - (C) Cache
 - (D) Register
25. In which operation carry is obtained?
- (A) Subtraction
 - (B) Addition
 - (C) Multiplication
 - (D) None of the above

26. There are _____ cells in a 3-variable K-map.
- (A) 12
(B) 16
(C) 18
(D) 8
27. Which of these sets of logic gates are known as universal gates?
- (A) XOR, NAND, OR
(B) OR, NOT, XOR
(C) NOR, NAND, XNOR
(D) NOR, NAND
28. Which of the following circuit can be used as parallel to serial converter?
- (A) Multiplexer
(B) Demultiplexer
(C) Decoder
(D) Digital Counter
29. Which is volatile memory?
- (A) ROM
(B) RAM
(C) Counter
(D) None of the above
30. The primary memory (also called main memory) of a personal computer consists of :
- (A) RAM
(B) ROM
(C) Both (A) and (B)
(D) None of the above
31. ROM stands for :
- (A) Real Only Memory
(B) Read-Only Memory
(C) Register Only Memory
(D) Route Only Memory
32. 4 to 1 MUX would have :
- (A) 2 output
(B) 3 output
(C) 1 output
(D) 6 output
33. The Boolean expression of AND gate:
- (A) $A.B$
(B) $A+B$
(C) $A-B$
(D) None of the above

34. Which part of a computer helps to store information?
 (A) Printer
 (B) Monitor
 (C) Keyboard
 (D) Disk Drive
35. Which one the lowest unit of storage?
 (A) Gigabyte
 (B) Terabyte
 (C) Kilobyte
 (D) Megabyte
36. Which is fastest memory ?
 (A) RAM
 (B) ROM
 (C) Cache
 (D) None of the above
37. What is the standard form of S-R flip flop?
 (A) Simple-Reset
 (B) Set-Reset
 (C) Single-Reset
 (D) None of the above
38. When the set is enabled in S-R flip flop then the output will be :
 (A) Set
 (B) Reset
 (C) No change
 (D) Intermediate
39. How many input does D-flip flop have?
 (A) One
 (B) Two
 (C) Three
 (D) Four
40. USB-type storage device is :
 (A) Secondary
 (B) Tertiary
 (C) Primary
 (D) None of the above
41. What will be the number of cylinders in a hard disk in which each recording surface contains 8 tracks and each track is divided into 16 sectors?
 (A) 18
 (B) 127
 (C) 8
 (D) 15
42. Because of virtual memory, the memory can be shared among :
 (A) Processes
 (B) Threads
 (C) Instructions
 (D) None of the above
43. What memory is called separation of user logical memory and physical memory ?
 (A) Memory sharing
 (B) Memory management
 (C) Memory control
 (D) Virtual memory

44. Half subtractor is used to perform subtraction of :
- (A) 4 bits
 - (B) 1 bits
 - (C) 2 bits
 - (D) 5 bits
45. How many outputs are required for the implementation of a subtractor?
- (A) 1
 - (B) 2
 - (C) 3
 - (D) 4
46. What is a multiplexer?
- (A) It is a type of decoder which decodes several inputs and gives one output
 - (B) A multiplexer is a device which converts many signals into one
 - (C) It takes one input and results into many output
 - (D) It is a type of encoder which decodes several inputs and gives one output
47. Which combinational circuit is renowned for selecting a single input from multiple inputs & directing the binary information to output line?
- (A) Data Selector
 - (B) Data distributor
 - (C) Both data selector and data distributor
 - (D) Demultiplexer
48. The full form of UVEPROM :
- (A) Uniform Essential Programmable Read Only Memory
 - (B) Ultraviolet Erasable Programmable Read Only Memory
 - (C) Universal Edit Program Research Only Memory
 - (D) None of the above
49. In a multiplexer, if there are 8 input lines and 1 output line, then number of selection lines will be:
- (A) 3
 - (B) 0
 - (C) 2
 - (D) 1

50. The parallel outputs of a counter circuit represent the :
- (A) Parallel data word
 - (B) Clock frequency
 - (C) Counter modulus
 - (D) Clock count
51. Ripple counters are also called :
- (A) SSI counters
 - (B) Asynchronous counters
 - (C) Synchronous counters
 - (D) VLSI counters
52. Which of the following has the highest data density?
- (A) Hard disk
 - (B) Compact Disk
 - (C) Tape drive
 - (D) None of the above
53. The full form of USB is :
- (A) Universal System Byte
 - (B) Universal Serial Byte
 - (C) Universal Signal Bus
 - (D) Universal Serial Bus
54. Which of the following is not an example of a storage device?
- (A) Hard Disk
 - (B) CD
 - (C) Keyboard
 - (D) None of the above
55. How many address lines are needed in 4k memory ?
- (A) 6
 - (B) 8
 - (C) 12
 - (D) 16
56. When a system suddenly shuts down, where can the data be stored so that it can remain intact?
- (A) Primary Storage Device
 - (B) Read Only Memory
 - (C) Secondary Storage Device
 - (D) None of the above
57. In which of the following magnetic storage devices is the data stored on a cylindrical drum and subdivided into tracks?
- (A) Punched card
 - (B) Magnetic disk
 - (C) Magnetic Tape
 - (D) Magnetic drum

58. RAM stands for :
- (A) Real Amount Memory
 - (B) Random Access Memory
 - (C) Random Actual Memory
 - (D) All of the above
59. How many bits in 1 byte ?
- (A) 4
 - (B) 2
 - (C) 8
 - (D) None of These
60. Which number system has a base 16?
- (A) Hexadecimal
 - (B) Octal
 - (C) Binary
 - (D) Decimal
61. The following hexadecimal number $(ABC)_{16}$ is equivalent to :
- (A) $(2748)_{10}$
 - (B) $(2222)_{10}$
 - (C) $(3522)_{10}$
 - (D) $(2666)_{10}$
62. Convert $(320)_{10}$ into octal :
- (A) $(222)_8$
 - (B) $(550)_8$
 - (C) $(444)_8$
 - (D) $(500)_8$
63. What is the addition of the binary number $10000 + 01001 = ?$
- (A) 01010
 - (B) 11110
 - (C) 11001
 - (D) 10111
64. 1's complement of 10001001 is :
- (A) 01001111
 - (B) 00000111
 - (C) 11100011
 - (D) 01110110
65. What is the binary multiplication of $110 * 11 = ?$
- (A) 011011
 - (B) 010010
 - (C) 011010
 - (D) 111001
66. Which number system has a base 10 ?
- (A) Hexadecimal
 - (B) Octal
 - (C) Binary
 - (D) Decimal

67. What memory is called separation of user logical memory and physical memory ?
- (A) Memory sharing
 - (B) Memory management
 - (C) Memory control
 - (D) Virtual memory
68. A flip flop is a/an :
- (A) Edge sensitive device
 - (B) Synchronous device
 - (C) Both (A) and (B)
 - (D) None of the above
69. The full form of CPU :
- (A) Central Processing Unit
 - (B) Central Policy Unit
 - (C) Central Propagation Unit
 - (D) None of the above
70. In the S-R flip flop S is :
- (A) SOURCE
 - (B) SIMPLE
 - (C) SET
 - (D) None of the above
71. In the S-R flip flop R is :
- (A) REQUEST
 - (B) RESET
 - (C) REVISION
 - (D) None of the above
72. The Boolean expression of OR gate :
- (A) $A.B$
 - (B) $A+B$
 - (C) $A-B$
 - (D) None of the above
73. What value is to be considered for a "don't care condition"?
- (A) 0
 - (B) 1
 - (C) Either 0 or 1
 - (D) Any number except 0 and 1
74. What is the group of 1s in 4 cells of a K-map called?
- (A) Pair
 - (B) Quad
 - (C) Octet
 - (D) Octave
75. The full form of DRAM is :
- (A) Double Random Access Memory
 - (B) Dynamic Random Access Memory
 - (C) Deep Random Access Memory
 - (D) None of the above

76. The full form of SOP is :
- (A) Sum of Practical
 - (B) Sum of Product
 - (C) Sum of Pictorial
 - (D) None of the Above
77. The full form of POS is :
- (A) Practical of Solution
 - (B) Product of Solution
 - (C) Product of Sum
 - (D) None of the Above
78. Which of the following circuit can be used as parallel to serial converter?
- (A) Multiplexer
 - (B) De-multiplexer
 - (C) Decoder
 - (D) Digital Counter
79. The cache memory of 1K words uses direct mapping with a block size of 4 words. How many blocks can the cache accommodate?
- (A) 512 words
 - (B) 256 words
 - (C) 1024 words
 - (D) 128 words
80. What is the high speed memory between the main memory and the CPU called?
- (A) Register Memory
 - (B) Cache Memory
 - (C) Storage Memory
 - (D) Virtual Memory
81. Whenever the data is found in the cache memory it is called as :
- (A) HIT
 - (B) MISS
 - (C) FOUND
 - (D) ERROR
82. Which of the following need to be refreshed to retain data even when power is on ?
- (A) Cache Memory
 - (B) EPROM
 - (C) SRAM
 - (D) DRAM
83. In _____ mapping, the data can be mapped anywhere in the Cache Memory.
- (A) Associative
 - (B) Direct
 - (C) Set Associative
 - (D) Indirect

84. _____ is an example of distributive law.
- (A) $A + BC = (A+B)(A+C)$
 (B) $A+B=B$
 (C) $A+BC=AB$
 (D) None of the above
85. The inverter is :
- (A) OR gate
 (B) AND gate
 (C) NOT gate
 (D) None of the Above
86. In Boolean algebra, the complement sign (- or ') indicates :
- (A) OR gate
 (B) AND gate
 (C) NOT gate
 (D) None of the above
87. The full form of EEPROM is :
- (A) Editable Erasable Page Read Only Memory
 (B) Electronic Editable Past Read Only Memory
 (C) Electrically Elastic Persist Read Only Memory
 (D) Electrically Erasable Programmable Read Only Memory
88. If A and B are the inputs of a half adder, the sum is given by :
- (A) A AND B
 (B) A OR B
 (C) A XOR B
 (D) A EX-NOR B
89. In which type of ROM, data can be erased by ultraviolet light and then reprogrammed by the user or manufacturer?
- (A) PROM
 (B) EPROM
 (C) Cache Memory
 (D) Both (A) and (B)
90. Total number of inputs in a half adder is :
- (A) 1
 (B) 3
 (C) 4
 (D) 2
91. The full form of SRAM is :
- (A) Sequential Random Access Memory
 (B) Starting Random Access Memory
 (C) Static Random Access Memory
 (D) None of the above

92. Which of the following can be represented for decoder?
- (A) Sequential circuit
 - (B) Combinational circuit
 - (C) Logical circuit
 - (D) None of the above
93. How many types of sequential circuits are?
- (A) 2
 - (B) 3
 - (C) 4
 - (D) 5
94. Which one is type of sequential circuit?
- (A) Flip-flop
 - (B) Subtractor
 - (C) Multiplexer
 - (D) Adder
95. In S-R flip-flop, if $Q = 0$ the output is said to be :
- (A) Set
 - (B) Reset
 - (C) Previous state
 - (D) Current state
96. The S-R flip flop consist of :
- (A) 4 AND gates
 - (B) Two additional AND gates
 - (C) An additional clock input
 - (D) None of the above
97. How much input and output needed for demultiplexer?
- (A) Many outputs to Many input
 - (B) One input one output
 - (C) One input many outputs
 - (D) None of the above
98. The full form of SIPO is :
- (A) Serial-In Parallel-Out
 - (B) Parallel-In Serial-Out
 - (C) Serial-In Serial-Out
 - (D) Serial-In Peripheral-Out
99. The full form of PIPO is :
- (A) Parallel In Part Out
 - (B) Partial In Parallel Out
 - (C) Past In Past Out
 - (D) None of the above
100. The register is a type of :
- (A) Sequential circuit
 - (B) Combinational circuit
 - (C) CPU
 - (D) Latches

Rough Work

Example :

Question :

Q.1 (A) ● (C) (D)

Q.2 (A) (B) ● (D)

Q.3 (A) ● (C) (D)

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 :

प्रश्न 1 (A) ● (C) (D)

प्रश्न 2 (A) (B) ● (D)

प्रश्न 3 (A) ● (C) (D)

5. प्रत्येक प्रश्न के अंक समान हैं। आपके जितने उत्तर सही होंगे, उन्हीं के अनुसार अंक प्रदान किये जायेंगे।
6. सभी उत्तर केवल ओ०एम०आर० 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. ओ०एम०आर० 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: प्रश्नपुस्तिका खोलने पर प्रथमतः जाँच कर देख लें कि प्रश्नपुस्तिका के सभी पृष्ठ भलीभाँति छपे हुए हैं। यदि प्रश्नपुस्तिका में कोई कमी हो, तो कक्षनिरीक्षक को दिखाकर उसी सिरीज की दूसरी प्रश्नपुस्तिका प्राप्त कर लें।

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