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(To be filled in the OMR Sheet)

प्रश्नपुस्तिका क्रमांक
Question Booklet No.

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

प्रश्नपुस्तिका सीरीज
Question Booklet Series

A

BCA (Second Semester) Examination, July-2022

BCA-202(N)

Digital Electronics & Computer Organization

(B.P.)

Time : 1:30 Hours **Maximum Marks-100**

जब तक कहा न जाय, इस प्रश्नपुस्तिका को न खोलें

निर्देश : –

1. परीक्षार्थी अपने अनुक्रमांक, विषय एवं प्रश्नपुस्तिका की सीरीज का विवरण यथास्थान सही– सही भरें, अन्यथा मूल्यांकन में किसी भी प्रकार की विसंगति की दशा में उसकी जिम्मेदारी स्वयं परीक्षार्थी की होगी।
2. **इस प्रश्नपुस्तिका में 100 प्रश्न हैं, जिनमे से केवल 75 प्रश्नों के उत्तर परीक्षार्थियों द्वारा दिये जाने है। प्रत्येक प्रश्न के चार वैकल्पिक उत्तर प्रश्न के नीचे दिये गये हैं। इन चारों में से केवल एक ही उत्तर सही है। जिस उत्तर को आप सही या सबसे उचित समझते हैं, अपने उत्तर पत्रक (O.M.R. ANSWER SHEET) में उसके अक्षर वाले वृत्त को काले या नीले बाल प्वांइट पेन से पूरा भर दें। यदि किसी परीक्षार्थी द्वारा किसी प्रश्न का एक से अधिक उत्तर दिया जाता है, तो उसे गलत उत्तर माना जायेगा।**
3. प्रत्येक प्रश्न के अंक समान हैं। आप के जितने उत्तर सही होंगे, उन्हीं के अनुसार अंक प्रदान किये जायेंगे।
4. सभी उत्तर केवल ओ०एम०आर० उत्तर पत्रक **(O.M.R. ANSWER SHEET)** पर ही दिये जाने हैं। उत्तर पत्रक में निर्धारित स्थान के अलावा अन्यत्र कहीं पर दिया गया उत्तर मान्य नहीं होगा।
5. ओ०एम०आर० उत्तर पत्रक **(O.M.R. ANSWER SHEET)** पर कुछ भी लिखने से पूर्व उसमें दिये गये सभी अनुदेशों को सावधानीपूर्वक पढ़ लिया जाय।
6. परीक्षा समाप्ति के उपरान्त परीक्षार्थी कक्ष निरीक्षक को अपनी ओ०एम०आर० शीट उपलब्ध कराने के बाद ही परीक्षा कक्ष से प्रस्थान करें।
7. निगेटिव मार्किंग नहीं है।

महत्वपूर्ण : – **प्रश्नपुस्तिका खोलने पर प्रथमतः जॉच कर देख लें कि प्रश्नपुस्तिका के सभी पृष्ठ भलीभॉति छपे हुए हैं। यदि प्रश्नपुस्तिका में कोई कमी हो, तो कक्ष निरीक्षक को दिखाकर उसी सीरीज की दूसरी प्रश्नपुस्तिका प्राप्त कर लें।**

K-364

Rough Work / रफ कार्य

1. What is Digital Electronics?

   (A) Field of electronics involving the study of digital signal

   (B) Engineering of devices that digital signal

   (C) Engineering of devices that produce digital signal

   (D) All of the above

2. Which of the following is an example of a digital Electronic?

   (A) Computers

   (B) Information appliances

   (C) Digital cameras

   (D) All of the mentioned

3. Which number system has a base 16?

   (A) Hexadecimal

   (B) Octal

   (C) Binary

   (D) Decimal

4. The following hexadecimal number $(1E.43)_{16}$ is equivalent to:

   (A) $(36.206)_8$

   (B) $(36.506)_8$

   (C) $(35.506)_8$

   (D) $(35.206)_8$

5. Convert $(312)_8$ into decimal:

   (A) $(210)_{10}$

   (B) $(202)_{10}$

   (C) $(203)_{10}$

   (D) $(204)_{10}$

6. 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

7. What is the addition of the binary number 101001 + 010011=?

(A) 010100

(B) 111100

(C) 000111

(D) 101110

8. What is the binary multiplication of 10100*01011=?

(A) 011011000

(B) 011001100

(C) 011011100

(D) 011100011

9. 1's complement of 1011001 is:

(A) 0100111

(B) 0101100

(C) 0100110

(D) 0110110

10. _____ is an example of associativity law.

(A) a+0=0+a=a

(B) 1+a=a+1=1

(C) a+bc=(a+b)(a+c)

(D) a+(b+c)=(a+b)+c

11. The inverter is:

(A) NOT gate

(B) OR gate

(C) AND gate

(D) None of the above

12. In Boolean algebra, the bar sign (-) indicates _____.

(A) OR gate

(B) AND gate

(C) NOT gate

(D) None of the above

13. The primary memory (also called main memory) of a personal computer consists of:

(A) RAM

(B) ROM

(C) Both (A) & (B)

(D) None of the above

14. What is the full form of RAM?

(A) Random Access Memory

(B) Read Access Memory

(C) Readable Access Memory

(D) Random Accumulator Memory

15. What is the full form of ROM?

(A) Random Only Memory

(B) Read-Only Memory

(C) Register Only Memory

(D) Readable Only Memory

16. Which is volatile memory?

(A) RAM

(B) ROM

(C) Register Only Memory

(D) None of the above

17. The full form of PROM is?

(A) Page Read Only Memory

(B) Past Read Only Memory

(C) Persist Read Only Memory

(D) Programmable Read Only Memory

18. 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) & (B)

19. 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

20. There are_____ cells in a 4-variable K-map.

(A) 12

(B) 16

(C) 18

(D) 8

21. Convert $(235)_8$ to decimal number:

(A) 157

(B) 1007

(C) 25

(D) 56

22. Each product term of a group, w'.x.y' and w.y, represents the _____ in that group.

(A) Input

(B) POS

(C) Sum-of-Minterms

(D) Sum-of -Maxterms

23. Don't care conditions can be used for simplifying Boolean expressions in_____.

(A) Registers

(B) Terms

(C) Latches

(D) K-map

24. Simplify the expression using K-maps: F (A,B,C,D)=Σ(1,3,5,6,7,11,13,14) :

(A) AB+BC'D+A'B'C

(B) BCD'+A'C'D+BD

(C) AC'D'+BC+A'BD+C'D'

(D) A'D+BCD+A'BC+AB'C'

25. 1 Byte =_____ bits.

(A) 2

(B) 3

(C) 4

(D) 8

26. Simplify the expression using K-maps: F (A,B,C))=Σ(1,3,5,6,7)

(A) AC'+B'

(B) AB+C

(C) AB'+B'C'

(D) A'BC+B'C+AC

27. The Boot sector files of the system are stored in which computer memory?

(A) RAM

(B) ROM

(C) Cache

(D) Register

28. Which memory acts as a buffer between CPU and main memory?

(A) RAM

(B) ROM

(C) Cache

(D) Storage

29. Total number of inputs in a half adder is_____.

(A) 2

(B) 3

(C) 4

(D) 1

30. In which operation carry is obtained?

(A) Subtraction

(B) Addition

(C) Multiplication

(D) None of the above

31. 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

32. Half subtractor is used to perform subtraction of _____.

(A) 2 bits

(B) 3 bits

(C) 4 bits

(D) 5 bits

33. How many outputs are required for the implementation of a subtractor?

(A) 1

(B) 2

(C) 3

(D) 4

34. 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

35. 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

36. Which is the major functioning responsibility of the multiplexing combinational circuit?

(A) Decoding the binary information

(B) Generation of all minterms in an output function with OR-gate

(C) Generation of selected path between multiple sources and a single destination

(D) Encoding of binary information

37. If the number of n selected input lines is equal to 2^m then it requires _____ select lines.

(A) 2

(B) m

(C) N

(D) 2^n

38. 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

39. In a multiplexer, if there are 4 input lines and 1 output line, then number of selection lines will be:
(A) 3
(B) 0
(C) 2
(D) 1

40. How many inputs will a decimal-to-BCD encoder have?
(A) 4
(B) 8
(C) 10
(D) 16

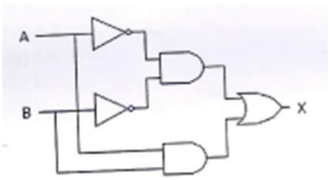
41. How many outputs will a decimal-to-BCD encoder have?
(A) 4
(B) 8
(C) 12
(D) 16

42. A decoder converts n inputs to _____ outputs.
(A) n
(B) n^2
(C) 2^n
(D) n^n

43. Which of the following can be represented for decoder?
(A) Sequential circuit
(B) Combinational circuit
(C) Logical circuit
(D) None of the mentioned above

44. Which of the following represents a number of output lines for a decoder with 4 input lines?
(A) 15
(B) 16
(C) 17
(D) 18

45. Which of the following logic expressions represents the logic diagram shown?



(A) X=AB'+A'B

(B) X=(AB)'+AB

(C) X=(AB)'+A'B'

(D) X=A'B'+AB

46. How many types of sequential circuits are?

(A) 2

(B) 3

(C) 4

(D) 5

47. The sequential circuit is also called _____.

(A) Flip-flop

(B) Latch

(C) Strobe

(D) Adder

48. In S-R flip-flop, if Q = 0 the output is said to be _____.

(A) Set

(B) Reset

(C) Previous state

(D) Current state

49. Which of the following is correct for a gated D-type flip-flop?

(A) The Q output is either SET or RESET as soon as the D input goes HIGH or LOW

(B) The output complement follows the input when enabled

(C) Only one of the inputs can be HIGH at a time

(D) The output toggles if one of the inputs is held HIGH

50. Which among following is considered as fastest memory?

(A) External Hard Disk

(B) Cache

(C) RAM

(D) ROM

51. Which is not following flip flop?

(A) S-R

(B) J-K

(C) D

(D) B

52. 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

53. How much input and output needed for demultiplexer?

(A) Many outputs to one input

(B) One input many outputs

(C) One input one output

(D) None of these

54. 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

55. The full form of PIPO is _____.

(A) Parallel in Parallel out

(B) Partial in Partial out

(C) Past in Past Out

(D) None of the above

56. The register is a type of _____.

(A) Sequential circuit

(B) Combinational circuit

(C) CPU

(D) Latches

57. The main difference between a register and a counter is _____.

(A) A register has no specific sequence of states

(B) A counter has no specific sequence of states

(C) A register has capability to store one bit of information but counter has n-bit

(D) A register counts data

58. 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

59. In digital logic, a counter is a device which _____.

(A) Counts the number of outputs

(B) Stores the number of times a particular event or process has occurred

(C) Stores the number of times a clock pulse rises and falls

(D) Counts the number of inputs

60. The parallel outputs of a counter circuit represent the _____.

(A) Parallel data word

(B) Clock frequency

(C) Counter modulus

(D) Clock count

61. Ripple counters are also called _____.

(A) SSI counters

(B) Asynchronous counters

(C) Synchronous counters

(D) VLSI counters

62. Which of the following has the highest data density?

(A) Hard disk

(B) Floppy disk

(C) Tape drive

(D) None of the above

63. What is the storage capacity of a compact disk?

(A) 800 MB

(B) 900 MB

(C) 700 MB

(D) 100 MB

64. Which of the following is not an example of a storage device?

(A) Hard disk

(B) CD

(C) Mouse

(D) None of the above

65. The number of bits needed to address 4k memory is:

(A) 6

(B) 8

(C) 12

(D) 16

66. A name or number used to identify a storage location is called a/an:

(A) Byte

(B) Data

(C) Constant

(D) Address

67. 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

68. 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

69. Which part of a computer helps to store information?
(A) Disk drive
(B) Monitor
(C) Keyboard
(D) Printer

70. Which of the following is the largest unit of storage?
(A) Gigabyte
(B) Terabyte
(C) Kilobyte
(D) None of the above

71. RAM and ROM are the examples of:
(A) Sequential
(B) Secondary
(C) Primary
(D) First

72. DRAM stands for:
(A) Drum Read Access Memory
(B) Disable AND Accurate Memory
(C) Dynamic Random Access Memory
(D) All of the above

73. What is the standard form of S-R flip flop?
(A) Simple-Reset
(B) Set-Reset
(C) Single-Reset
(D) None of the above

74. When the set is enabled in S-R flip flop then the output will be _____.
(A) Set
(B) Reset
(C) No change
(D) Intermediate

75. When both set and reset are disabled in S-R flip flop then the output will be_____.
(A) Set
(B) Reset
(C) No change
(D) Intermediate

76. The preset input is used to make output _____.
(A) Q=1
(B) Q=0
(C) Invalid
(D) No change

77. A flip flop is an _____.
(A) Edge sensitive device
(B) Synchronous device
(C) Both (A) and (B)
(D) None of the above

78. The universal gate is:
(A) NAND gate
(B) OR gate
(C) AND gate
(D) None of the above

79. 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

80. How many outputs does D-flip flop have?
(A) One
(B) Two
(C) Three
(D) Four

81. In which manner does down counter count?
(A) Upward
(B) Downward
(C) Both (A) & (B)
(D) None of the above

82. How many of states are there in a 3 bit counter?
(A) One
(B) Four
(C) Eight
(D) Sixteen

83. The full form of CPU:
(A) Central Processing Unit
(B) Central Public Unit
(C) Central Population Unit
(D) None of the above

84. The full form of ALU:
(A) Another Logic Unit
(B) Amongst Large Unit
(C) All Large Unit
(D) Arithmetic Logical Unit

85. The binary numbers are:
(A) 3,4
(B) 7,8
(C) 0,1
(D) 9, 5

86. Which of the following memories must be refreshed many times per second?
(A) EPROM
(B) ROM
(C) Static ROM
(D) Dynamic ROM

87. USB-type storage device is:
(A) Secondary
(B) Tertiary
(C) Primary
(D) None of the above

88. How many address inputs are required to access 256 Bytes memory?
(A) 256
(B) 2
(C) 8
(D) 16

89. 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) 8
(B) 128
(C) 24
(D) 16

90. Because of virtual memory, the memory can be shared among _____.
(A) Processes
(B) Threads
(C) Instructions
(D) None of the above

91. What memory is called separation of user logical memory and physical memory?
(A) Memory sharing
(B) Memory management
(C) Memory control
(D) Virtual memory

92. In _____ mapping, the data can be mapped anywhere in the Cache Memory.
(A) Associative
(B) Direct
(C) Set Associative
(D) Indirect

93. 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

94. The Boolean expression of OR gate:
(A) A+B
(B) A-B
(C) A.B
(D) None of the above

95. The Boolean expression of AND gate:
(A) A+B
(B) A-B
(C) A.B
(D) None of the above

96. In which of the following base system is 123 not a valid number?
(A) Base 10
(B) Base 16
(C) Base 8
(D) Base 3

97. What are the basic gates?
(A) AND
(B) OR
(C) NOT
(D) All of the above

98. BCD counter is also known as _____.
(A) Parallel counter
(B) Decade counter
(C) Synchronous counter
(D) VLSI counter

99. 4 to 1 MUX would have:
(A) 2 output
(B) 3 output
(C) 1 output
(D) 6 output

100. Which of the following circuit can be used as parallel to serial converter?
(A) Multiplexer
(B) Demultiplexer
(C) Decoder
(D) Digital counter

******

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