OMR Answer Sheet No.

Question Booklet Number

24/2338

B.C.A. (Second Semester) Examination, 2024

Booklet Code **B**

Paper-II (Major)

Digital Electronics & Computer Organization

(निम्न पूर्तियाँ परीक्षार्थी स्वयं भरें / To be filled in by the Candidate)

अनुक्रमांक (अंकों में)
Roll No. (in figures)

[समय : 2 : 00 घण्टे
[Time : 2 : 00 Hours

अनुक्रमांक (शब्दों में)
Roll No. (in words)

[अधिकतम अंक : 75
[Maximum Marks : 75

Enrolment No. (in figures)

कॉलेज का नाम
Name of College

कक्ष निरीक्षक के हस्ताक्षर
Signature of Invigilator

परीक्षार्थियों के लिए निर्देश :

1. प्रश्न-पुस्तिका को तब तक न खोलें जब तक आपसे कहा न जाए।
2. इस प्रश्न-पुस्तिका में कुल 75 प्रश्न हैं। परीक्षार्थियों को सभी प्रश्न हल करना अनिवार्य है। दिये गये OMR उत्तर-पत्रक पर ही सभी प्रश्न हल करना है। सभी प्रश्नों के अंक समान हैं।
3. प्रश्नों के उत्तर अंकित करने से पूर्व प्रश्न-पुस्तिका तथा OMR उत्तर-पत्रक को सावधानीपूर्वक देख लें। दोषपूर्ण प्रश्न-पुस्तिका, जिसमें कुछ भाग छपने से छूट गये हों या प्रश्न एक से अधिक बार छप गये हों या किसी भी प्रकार की कमी हो, उसे तुरन्त बदल लें।

(शेष निर्देश अन्तिम पृष्ठ पर)

Instructions for the Examinee :

1. Do not open the booklet unless you are asked to do so.
2. This booklet contains 75 questions. Examinee have to attempt all questions. All questions attempt on the given OMR Answer Sheet. 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 immediately replaced.

(Remaining Instructions on last page)

1. DRAM stands for?

(1) Degenerative Random Access Memory

(2) Data Random Access Memory

(3) Dynamic Random Access Memory

(4) None of these

2. Which of these are features of PROM?

(1) It can be coded by the user

(2) It is volatile memory

(3) It can be erased

(4) None of these

3. EPROM stands for?

(1) Electronically Programmable Read Only Memory

(2) Erasable Programmable Read Only Memory

(3) Electronically Primary Read Only Memory

(4) Erasable Primary Read Only Memory

4. Which of these is a feature of EPROM?

(1) It can be programmed by user

(2) It is a non-volatile memory

(3) It can be erased using UV light

(4) All of these

5. EEPROM stands for?

(1) Erasable External Programmable Read Only Memory

(2) External Erasable Programmable Read Only Memory

(3) Electronically Erasable Programmable Read Only Memory

(4) Electronically Erasable Primary Read Only Memory

6. Which of these is a volatile memory?

(1) EPROM

(2) Hard Disk

(3) RAM

(4) All of these

7. Which of these are used of ROM?

(1) Embedded system

(2) Coding for home appliances

(3) Coding for calculator

(4) All of these

8. Which gate is known as the universal gate?

(1) NAND

(2) OR

(3) AND

(4) None

9. Which of the following is not a logical gate?

(1) AND

(2) OR

(3) IF

(4) NOT

10. What is the one's complement for the binary number 011001

(1) 000111

(2) 100110

(3) 111001

(4) 110001

11. Which of the following signifies a NOT gate?

(1) 1 (input) - 0 (output)

(2) 1, 0 (input) - 1 (output)

(3) 0, 0 (input) - 0 (output)

(4) None

12. Which of the following gates can function on a single input?

(1) NOT

(2) AND

(3) OR

(4) None

13. What combination is a NAND gate?

(1) NOT AND

(2) NOT OR

(3) NOT NOT

(4) None of these

14. The output of a logic gate is 1 when all the input are at logic 0 as shown below:

Input		Output
A	B	C
0	0	1
0	1	0
1	0	0
1	1	1

The gate is _____

(1) EX-OR

(2) EX-NOR

(3) AND

(4) NOR

15. The following switching functions are to be implemented using a decoder: $f1=\Sigma m(1, 2, 4, 8, 10, 14)$ $f2=\Sigma m(2, 5, 9, 11)$ $f3=\Sigma m(2, 4, 5, 6, 7)$

(1) 2 to 4 Line

(2) 3 to 8 Line

(3) 4 to 6 Line

(4) 5 to 32 Line

16. How many AND gates are required to realize Y=CD+EF+G?

(1) 4

(2) 5

(3) 3

(4) 2

17. A full adder logic circuit will have _____

(1) Two Inputs and One Output

(2) Three Inputs and Three Output

(3) Two Inputs and Two Output

(4) Three Inputs and Two Output

18. The gates required to build a half adder are _____

(1) EX-OR GATE AND NOR GATE

(2) EX-OR GATE AND OR GATE

(3) EX-OR GATE AND AND GATE

(4) EX-NOR gate and AND gate

19. How many entries will be in the truth table of a 4-input NAND gate?

(1) 6

(2) 8

(3) 32

(4) 16

20. In the toggle mode, a JK flip-flop has

(1) J=0, K=1

(2) J=1, K=1

(3) J=0, K=0

(4) J=1, K=0

P.T.

21. _____ are the alternative form of canonical form

(1) Sum of products

(2) Product of sums

(3) Both (1) and (2)

(4) None of the above

22. The sum of products canonical forms also known as _____

(1) Minterm expansion

(2) Disjunctive normal form

(3) Both (1) and (2)

(4) None of the above

23. _____ is an example of identity law

(1) a+0=0+a=a

(2) 1+a=a+1=1

(3) ab=ba

(4) a+(b+c)=(a+b)+c

24. _____ is an example of commutativity law

(1) a+0=0+a=a

(2) 1+a=a+1=1

(3) ab=ba

(4) a+(b+c)=(a+b)+c

25. _____ is an example of distributive law

(1) a+0=0+a=a

(2) 1+a=a+1=1

(3) ab=ba

(4) a+(b+c)=(a+b)+c

26. Combinational logic is used to _____

(1) Compute outputs

(2) Compute new states

(3) Both (1) and (2)

(4) None of the above

27. The sequential logic contains _____

(1) Memory elements

(2) Memory is provided by feedback

(3) Both (1) and (2)

(4) None of the above

28. If a 3-input OR gate has eight input possibilities, how many of those possibilities will result in a HIGH output?

(1) 1

(2) 2

(3) 7

(4) 8

29. The output of an AND gate with three inputs, A, B and C, is HIGH when _____

(1) A=1, B=1, C=0

(2) A=0, B=0, C=0

(3) A=1, B=1, C=1

(4) A=1, B=0, C=1

30. If a 3-input NOR gate has eight input possibilities, how many of those possibilities will result in a HIGH output?

(1) 1

(2) 2

(3) 7

(4) 8

31. If a signal passing through a gate is inhibited by sending a LOW into one of the inputs, and the output is HIGH, the gate is a(n):

(1) AND

(2) NAND

(3) NOR

(4) OR

32. How many input combinations would a truth table have for a six-input AND gate?

(1) 32

(2) 48

(3) 64

(4) 128

33. The terms "low speed" and "high speed", applied to logic circuits, refer to the _____.

(1) Rise time

(2) Fall time

(3) Propagation delay time

(4) Clock speed

34. The output of an exclusive-NOR gate in HIGH if _____.

(1) The inputs are equal

(2) One input in HIGH, and the other input in LOW

(3) The inputs are unequal

(4) None of the above

35. There are a total of _____ cells in a K-map with 4-variable.

(1) 8

(2) 18

(3) 16

(4) 12

36. The don't care condition could be used in order to simplify the Boolean expressions in the _____.

(1) Latches

(2) K-maps

(3) Terms

(4) Registers

37. A variable on its own or in its complemented form is known as a _____.

(1) Product Term

(2) Literal

(3) Sum Term

(4) All of the above

38. It is a single literal or a logical product (AND) of several literals.

(1) SOP

(2) POS

(3) Literal

(4) Product Term

39. The prime implicant, which has at least one element that is not present in any other implicant, is known as _____.

(1) Essential Prime Implicant

(2) Implicant

(3) Complement

(4) All of the above

40. Each group of adjacent Minterms (group size in powers of twos) corresponds to a possible product term of the given _____.

(1) Function

(2) Value

(3) Set

(4) None of the above

41. Who has invented K-map?

(1) Maurice Karnaugh

(2) Edward Veitch

(3) George Boole

(4) Adam Smith

42. A register is a group of _____.

(1) OR gates

(2) OR & AND gate

(3) Flip-flops

(4) None of these

43. A multiplexer is also called _____?

(1) MUX

(2) Data selector

(3) Multiplexor

(4) All of the above

44. A multiplexer has ____ number of inputs?

(1) n

(2) 2 ^ n

(3) 2n

(4) n/2

P.T.O.

45. A multiplexer has ____ number of outputs?

(1) n

(2) 2^ n

(3) 2n

(4) n/2

46. A multiplexer is a _____ circuit?

(1) Combinational

(2) Sequential

(3) Both (1) and (2)

(4) None of the above

47. A 16 by 1 type of multiplexer has _____number of selector lines?

(1) 1

(2) 2

(3) 3

(4) 4

48. How many AND logic gates are required to design a 8by1 multiplexer?

(1) 1

(2) 3

(3) 8

(4) 4

49. How many OR logic gates are required to design a 8by1 multiplexer?

(1) 1

(2) 2

(3) 3

(4) 8

50. Which of the following are the field of applications of multiplexers?

(1) Communication systems

(2) Computer memory

(3) Telephone network

(4) All the above

51. Which of the following electronic device has single input and multiple output?

(1) Multiplexer

(2) De-multiplexer

(3) Amplifier

(4) Both (1) and (3)

52. Which of the following are the applications of De-mux?

(1) Communication system

(2) ALU

(3) Serial to parallel convertor

(4) All the above

53. _____ holds address of the active memory location.

(1) Stack pointer

(2) Program Counter

(3) Memory Address Register

(4) None of the above

54. 1 terabytes per second = _____ bytes per second

(1) 2^{40}

(2) 2^{10}

(3) 2^{20}

(4) None of the above

55. Which of the following is the correct categorisation of volatile semiconductor memory based on the data retention capability?

(1) DRAM and ROM

(2) SRAM and DRAM

(3) RAM and ROM

(4) None of the above

56. Which of the following is the fastest memory?

(1) Hard Disk

(2) DVD ROMs

(3) Static RAM

(4) Cache Memory

57. Which of the following is used in main memory?

(1) DDR

(2) DRAM

(3) SRAM

(4) PRAM

58. The Boot sector files of the system are stored in which computer memory? https://www.mgkvponline.com

(1) RAM

(2) ROM

(3) Cache

(4) Register

59. Which of the following statements are not correct about the main memory of a computer?

(1) In main memory, data gets lost when power is switched off

(2) Main memory is faster than secondary memory but slower than registers

(3) They are made up of semiconductors

(4) All are correct

60. What is the full form of RAM?

(1) Read Access Memory

(2) Random Access Memory

(3) Readable Access Memory

(4) Random Accumulator Memory

61. Which of the following is the lowest in the computer memory hierarchy?

(1) Cache

(2) RAM

(3) Secondary memory

(4) CPU registers

62. Which of the following has the fastest speed in the computer memory hierarchy?

(1) Cache

(2) Register in CPU

(3) Main Memory

(4) Disk cache

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

(1) RAM

(2) ROM

(3) Cache

(4) Storage

64. Size of the _____ memory mainly depends on the size of the address bus.

(1) Main

(2) Virtual

(3) Secondary

(4) Cache

65. What is the location of the internal registers of CPU?

(1) Internal

(2) On-chip

(3) External

(4) Motherboard

66. For making a memory of size 2048 × 8 bytes, by using the chips of size 128 × 4 bytes, the number of chips required is:

(1) 8

(2) 16

(3) 32

(4) 64

67. Which of the following is not correct about the virtual memory segmentation?

(1) It is not necessary to load all of the segments of a process

(2) It has no internal fragmentation

(3) It has large virtual address space

(4) It provides lower degree of multiprogramming.

68. Arrange the following from fastest to slowest in speed.

A. DRAM

B. SRAM

C. CPU Registers

D. Magnetic tapes

E. Hard disk

Choose the correct answer from the options given below:

(1) A, B, C, D, E

(2) C, B, A, E, D

(3) C, D, B, A, E

(4) B, C, D, A, E

P.T.O.

69. Which of the following memory is used to minimize memory-processor speed mismatch?

(1) Flash memory

(2) DVD

(3) Cache memory

(4) None of the above

70. Which of the following has the highest storage?

(1) Megabyte

(2) Gigabyte

(3) Terabyte

(4) Kilobyte

71. Which of the following is NOT a part of auxiliary memories in a Computer System?

(1) PROM

(2) Floppy

(3) CD-ROM

(4) Magnetic tapes

72. Permanent Memory of a computer is known as-

(1) RAM

(2) CD-ROM

(3) ROM

(4) CPU

73. What does SRAM stand for?

(1) Strong Random Access Memory

(2) Serialized Random Access Memory

(3) Static Random Access Memory

(4) All of these

74. Which of these statements are correct for SRAM?

(1) It need refreshing

(2) It uses capacitors to store data

(3) It uses transistor to store data

(4) None of these

75. Which of these devices use capacitors to store data?

(1) SRAM

(2) DRAM

(3) ERAM

(4) PRAM