DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE ASKED TO DO SO

TEST BOOKLET

AP(CC)COMPUTER APPLICATION-2016

Time Allowed : 2 Hours]   [Maximum Marks : 100

All questions carry equal marks.

INSTRUCTIONS

1. Immediately after the commencement of the examination, you should check that test booklet does not have any unprinted or torn or missing pages or items, etc. If so, get it replaced by a complete test booklet.

2. Write your Roll Number only in the box provided alongside. Do not write anything else on the Test Booklet.

3. This Test Booklet contains **100** items (questions). Each item comprises four responses (answers). Choose only one response for each item which you consider the best.

4. After the candidate has read each item in the Test Booklet and decided which of the given responses is correct or the best, he has to mark the circle containing the letter of the selected response by blackening it completely with Black or Blue ball pen. In the following example, response "C" is so marked :

Ⓐ   Ⓑ   ●   Ⓓ

5. Do the encoding carefully as given in the illustrations. While encoding your particulars or marking the answers on answer sheet, you should blacken the circle corresponding to the choice in full and no part of the circle should be left unfilled. After the response has been marked in the ANSWER SHEET, no erasing/fluid is allowed.

6. You have to mark all your responses ONLY on the ANSWER SHEET separately given according to 'INSTRUCTIONS FOR CANDIDATES' already supplied to you. *Responses marked on the Test Booklet or in any paper other than the answer sheet shall not be examined.*

7. All items carry equal marks. Attempt all items. Your total marks will depend only on the number of correct responses marked by you in the Answer Sheet. There will be no negative marking.

8. Before you proceed to mark responses in the Answer Sheet fill in the particulars in the front portion of the Answer Sheet as per the instructions sent to you.

9. If a candidate gives more than one answer, it will be treated as a wrong answer even if one of the given answers happens to be correct.

10. After you have completed the test, hand over the Answer Sheet only, to the Invigilator.

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1. The device used by Banks to automatically read those special numbers on the bottom of cheques is :

   (A) MICR (B) OMR

   (C) UPC (D) UDIC

2. Which one of the following is a functionally complete set of gates ?

   (A) NOT (B) OR

   (C) AND (D) NAND

3. When a computer suddenly stops working, it is said to be :

   (A) Crashed (B) Bugged

   (C) Hanged (D) Held up

4. Memory is divided into many numerically address :

   (A) Addresses (B) Bits

   (C) Words (D) Locations

5. The total number of Boolean functions that can be defined with n variables :

   (A) 2^n

   (B) 2^{n^2}

   (C) 2^{2n}

   (D) None of these

6. A cube is made up of 125, one cm square cubes placed on a table. How many squares are visible only on one side ?

   (A) 15

   (B) 25

   (C) 125

   (D) None of these

7. The smallest integer that can be represented by an 8 bit number in 2's complement form is :

   (A) −256

   (B) −128

   (C) −127

   (D) −255

8. The height of a tree is the length of longest root-to-leaf path in it. The maximum and minimum number of nodes in a Binary Tree of height 5 is :

   (A) 63 and 6, respectively

   (B) 64 and 5, respectively

   (C) 32 and 6, respectively

   (D) 31 and 5, respectively

9. The following two sets of pairs of numbers share a special relationship amongst themselves :

$$329 : 15 \text{ and } 746 : 34.$$

Which of the following pairs of numbers share the same relationship ?

(A) 287 : 22

(B) 698 : 62

(C) 942 : 68

(D) 382 : 12

10. DRAM Chip :

(A) is much smaller than SRAM

(B) is larger than SRAM

(C) can be both (A) and (B)

(D) None of the above

11. MS Flip-flop is used in :

(A) Register

(B) Counter

(C) Memory

(D) None of these

12. Simplification of the Boolean expression :

$$(A + B + C)\,\overline{(D + E)} + (A + B + C)\,(D + E) \text{ yields}$$

(A) $D + E$

(B) $\overline{A}B\overline{C}$

(C) $A + B + C$

(D) None of these

13. A computer cannot 'boot' if it does *not* have the :

   (A) Compiler   (B) Loader

   (C) Assembler   (D) Operating System

14. CPU means :

   (A) ALU – CU   (B) ALU + CPU

   (C) ALU + CU   (D) None of these

15. LAN like Ethernet is a :

   (A) Loosely coupled   (B) Tightly coupled

   (C) Not coupled   (D) None of these

16. The equation for Amadahl's law is :

   (A) $S(n) = \dfrac{1}{f}$ $\underset{n \to \infty}{}$ (B) $S(n) = f$ $\underset{n \to \infty}{}$

   (C) $S(n) = \dfrac{1}{p}$ $\underset{n \to \infty}{}$ (D) None of these

17. Performance (P) and execution time (T) of CPU are related by :

   (A) $P \propto T$ (B) $P \propto \dfrac{1}{T}$

   (C) $P = T$ (D) $P + T$

18. A compiler that automatically detects parallelisms is known as :

    (A) Optimising compiler   (B) Run-time compiler

    (C) Interpreter   (D) None of these

19. The number of nodes in the graph is called as :

    (A) Network size   (B) Graph

    (C) Grain   (D) None of these

20. The information transfer between CPU and cache is in terms of :

    (A) Bytes   (B) Bits

    (C) Words   (D) None of these

21. Array Processors are put under which of these categories ?

    (A) SISD   (B) SIMD

    (C) MISD   (D) MIMD

22. Magnetic disc is an example of :

    (A) Online storage   (B) Offline storage

    (C) Offset storage   (D) None of these

23. Memory is slower than CPU :

   (A) 100 times   (B) 10 times

   (C) 1,000 times   (D) 10,000 times

24. Caches are usually built out of :

   (A) SRAMS   (B) DRAMS

   (C) PROM   (D) EEPROM

25. Pipelining uses :

   (A) Data parallelism   (B) Temporal parallelism

   (C) Spatial parallelism   (D) None of these

26. CPA stands for :

   (A) Carry Power Adder   (B) Carry Positive Addition

   (C) Carry Propagation Adder (D) None of these

27. Which algorithm is better choice for pipelining ?

   (A) Hash algorithm   (B) Small algorithm

   (C) Merge-sort algorithm   (D) None of these

28. When cache size increases, hit ratio :

   (A) Increases

   (B) Decreases

   (C) Remains constant

   (D) None of these

29. When block size equals the entire cache size, the hit ratio becomes :

   (A) 0

   (B) 1

   (C) 2

   (D) 4

30. A 'semaphore' is :

   (A) A binary variable

   (B) Provided mutual exclusion to critical section

   (C) Processor variable

   (D) Multivariable

31. Network topology, consisting of nodes attached in a ring, without a host computer, is known as :

   (A) Star

   (B) Ring

   (C) Bus

   (D) None of these

32. Ethernet uses :

   (A) Bus topology

   (B) Ring topology

   (C) Mesh topology

   (D) None of these

33. Typical data transfer rates in LAN are of the order of :

    (A) Bits per sec   (B) Kilo bits per sec

    (C) Mega bits per sec   (D) None of these

34. Which step is taken first in designing a program ?

    (A) Data validation   (B) Input design

    (C) Task analysis   (D) Problem identification

35. Algorithm is necessary :

    (A) To find out a define solution to computational problem

    (B) To write a program

    (C) To make the decision table

    (D) To translate flowchart into a program

36. A computer program consists of :

    (A) A completed flowchart

    (B) Algorithm

    (C) Algorithm in written computer's language

    (D) Discrete logic steps

37. Which of the following languages is usually implemented with an interpreter ?

(A) Assembly

(B) PASCAL

(C) COBOL

(D) BASIC

38. In reference to a computer, an assembler is a :

(A) Program

(B) Person who assembles the parts

(C) Symbol

(D) None of the above

39. What symbol terminates every 'C' statement ?

(A) Comma

(B) Dot

(C) Semicolon

(D) None of these

40. What symbol *cannot* be used as part of a literal ?

(A) Single quote

(B) Double quote

(C) Both (A) and (B)

(D) None of these

41. Which of the following is *not* a floating point number ?

    (A) 123   (B) 67.25

    (C) 15.01   (D) 10.23E–9

42. What is the maximum number of characters which a variable of type char can hold ?

    (A) One   (B) Three

    (C) Four   (D) None of these

43. C++ version

```
# include < iostream.h>

main( )

{

   int x;

     x = 90;

     cout << x;

}
```

    (A) 90   (B) 91

    (C) 89   (D) None of these

44. What is the output from the following program ?

```
main ( )
{
    int i, i
    i=7
    j=++i
    printf("i=%d, j=%d\n",i,j)
}
```

(A) i=8, j=8   (B) i=9, j=9

(C) i=7, j=7   (D) None of these

45. Which of the following can legitimately be passed to a function ?

(A) A constant   (B) A variable

(C) A structure   (D) All of these

46. What will be the output of the following program segment ?

```
# include <iostream.h>

    main ( )

    {

    int a,b = 0

    intc[10] = {1, 2, 3, 4, 5, 6, 7, 8, 9, 0}

    for (a = 0, a < 10, ++a)

    b + = c[a];

    cout << b;

}
```

(A) c45   (B) c

(C) 45   (D) None of these

47. Virus is a computer :

(A) File   (B) Program

(C) Database   (D) Network

48. The private key :

(A) Must be distributed

(B) Must be shared with everyone

(C) Must remain secrete with an individual

(D) None of the above

49. SSL works between .... and ....

(A) Web browser, Web server

(B) Web browser, application server

(C) Web server, application server

(D) Application server, database server

50. The .... protocol is similar to SSL.

(A) HTTP   (B) HTTPS

(C) TLS   (D) SHTTP

51. Credit card details are not available to the .... in SEL.

(A) Merchant   (B) Customer

(C) Both (A) and (B)   (D) Payment Gateway

52. .... is the most common authentication mechanism.

(A) Smart Card   (B) PIN

(C) Password   (D) Biometrics

53. .... are capable of cryptographic operations.

(A) Credit Cards   (B) ATM Cards

(C) Debit Cards   (D) Smart Cards

54. Firewall is a specialized form of a ....

(A) Bridge   (B) Disk

(C) Printer   (D) Router

55. A packet filter examines .... packets.

(A) All   (B) None

(C) Some   (D) Alternate

56. In homogeneous coordinates representation [2, 2, 0] represents a point :

(A) Lying at infinity

(B) at (2, 2)

(C) at (2, 1) and (2, 2)

(D) None of these

57. The properties of two-dimensional DFT is :

(A) Symmetric

(B) Periodic extension

(C) Conjugate symmetry

(D) All of these

58. Run length coding is a technique :

(A) To reduce the size of repeating string of characters

(B) To count the sequence of characters

(C) Both (A) and (B)

(D) None of the above

59. COBOL stands for :

(A) Common Business Oriented Language

(B) Common Bulck Language

(C) Common Block Oriented Language

(D) None of the above

60. Java cryptography mechanism are in the form of .... and ....

   (A) JCP, JCA   (B) JCA, JCB

   (C) JCA, JCE   (D) JCE, JCF

61. Cartesian product A × B is :

   (A) {<a, b> | a ∈ A ∧ b ∈ B}

   (B) {<b, a> | a ψ A ∨ b ψ B}

   (C) {<a, b> | a φ A ∨ b φ B}

   (D) None of the above

62. Relations is expressed as :

   (A) $f : A \rightarrow B$, then $f \in A \times B$

   (B) $f : A \rightarrow B$, then f ψ A × B

   (C) None of the above

   (D) Both (A) and (B)

63. How many solutions does

$$x_1 + x_2 + x_3 = 11$$

have, where x_1, x_2 and x_3 are non-negative integers with $x_1 \leq 3$, $x_2 \leq 4$, and $x_3 \leq 6$.

(A) 6

(B) 8

(C) 2

(D) 4

64. How many elements are in $A_1 \cup A_2$, if there are 12 elements in A_1, 18 elements in A_2 and $A_1 \cap A_2 = 0$.

(A) 20

(B) 10

(C) 8

(D) 30

65. Let A = {0, 1, 2} and B = {a, b}, then the relation from A to B is :

(A) {(0, a), (0, b), (1, a), (2, b)}

(B) {(0, a), (0, b), (1, a), (1, b), (2, b)}

(C) {(0, a), (0, b), (1, b), (2, a)}

(D) None of the above

66. How many edges are there in a graph with ten vertices each of degree six ?

(A) 60

(B) 20

(C) 30

(D) 120
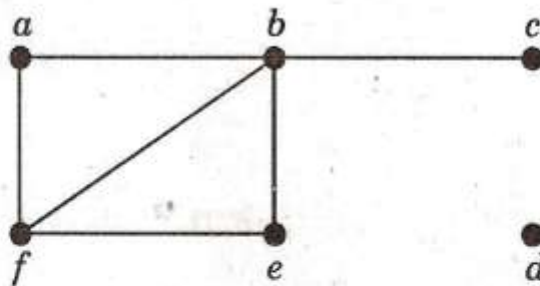
67. Call graph is used to model :

(A) Network nodes

(B) Wireless nodes

(C) Telephone switching

(D) Telephone calls

68. Find the number of vertices, the number of edges in the following undirected graph :
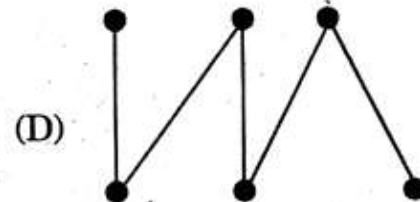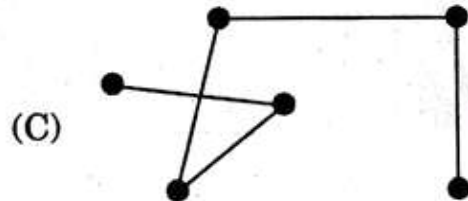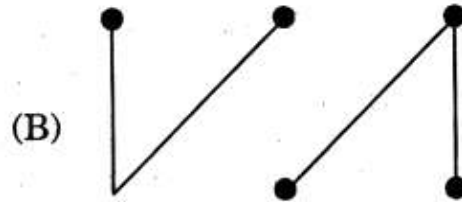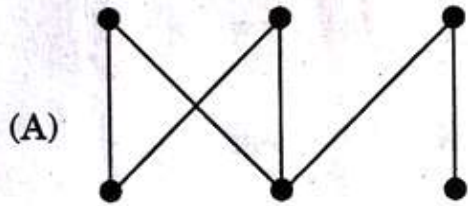

(A) vertex = 8, edge = 10

(B) vertex = 8, edge = 8

(C) vertex = 10, edge = 8

(D) vertex = 6, edge = 6

69. Which of these graphs are trees ?

(A)

(B)

(C)

(D)

70. Normalization is done for :

   (A) Data Redundancy   (B) Data Preparation

   (C) Data Authentication   (D) All of these

71. Let A = {0, 11} and B = {1, 10, 110}. Find AB :

   (A) {01, 010, 0110, 111, 1010, 1000}

   (B) {010, 001, 0110, 101, 1010, 1100}

   (C) {01, 101, 010, 101, 000, 001}

   (D) None of the above

72. Describe in words the string in the following set 111 ∪ 001 :

   (A) 111 or 001   (B) 001 or 111

   (C) Both (A) and (B)   (D) None of these

73. Turing machine is a :

   (A) Physical machine   (B) Abstract view

   (C) Computational aspects   (D) None of these

74. Data structure is a :

   (A) Database   (B) Array of elements

   (C) Collection of elements   (D) None of these

75. SQL stands for :

   (A) Structured Query Language (B) Standard Query Language

   (C) Simple Query Language   (D) Standard Quality Language

76. JOIN used :

   (A) To connect data from one or more tables

   (B) To connect data from one or more tables by relating the contents of
       columns

   (C) To connect data from one or more tables by relating the contents of
       columns which have an equivalent meaning

   (D) All of the above

77. Deadlock and starvation is :

   (A) Same   (B) Different

   (C) Undefined state   (D) All of these

78. Thread is a :

   (A) Light Weight Process   (B) Process

   (C) Light Weight Event   (D) A small program

79. RAID acronym is :

   (A) Large scale expensive disk

   (B) A physical drive

   (C) A set of physical disk drives viewed by the O.S. as a single logical drive

   (D) Redundant Array of Inexpensive disks

80. Compiler is :

   (A) A interpreter

   (B) An assembly language program

   (C) High level program

   (D) Low level program

81. Which lake is the source of Bhaga river ?

    (A) Chandra Tal   (B) Suraj Tal

    (C) Kalaser   (D) Nako

82. Who is the author of Numismatics History of Himachal Pradesh ?

    (A) O.C. Handa   (B) M.S. Gill

    (C) S.S. Negi   (D) P.L. Gupta

83. In which District of H.P. is Kiarda-dun Valley ?

    (A) Sirmaur   (B) Solan

    (C) Mandi   (D) Bilaspur

84. In which region of H.P. is Vasuki Nag worship popular ?

    (A) Sirmaur   (B) Kullu

    (C) Una   (D) Chamba

85. To whom was the Kullu Nati of October 2015 which was termed as pride of Kullu dedicated ?

(A) Heroes of Kargil   (B) Physically challenged children

(C) Girl child   (D) None of these

86. Which sage is worshipped in Sirmaur area of H.P. ?

(A) Lomas   (B) Vyas

(C) Jamadagni   (D) Bhrigu

87. By which name is Baishakhi festival called in the Pangi area of Chamba District of H.P. ?

(A) Bissu   (B) Bees

(C) Lissu   (D) All of these

88. What was the decennial growth in population in Solan District of H.P. ?

(A) 15.9   (B) 15.5

(C) 14.8   (D) 12.8

89. Which District of H.P. had the highest number of applications in the live register of Employment Exchanges in 2014-15 ?

(A) Mandi

(B) Kangra

(C) Hamirpur

(D) Shimla

90. At which place in Chamba District of H.P. is Government run Bal/Balika Ashram under Mukhyamantri Bal Uddhar Yojna ?

(A) Sahoo

(B) Dalhousie

(C) Pangi

(D) Mahla

91. With which game is Sushila Chanu associated ?

(A) Table Tennis

(B) Hockey

(C) Cricket

(D) Boxing

92. What did Dhingra Commission set up by the Government of Haryana deal with ?

    (A) Violence during Jat agitation

    (B) Role of Khap Panchayats

    (C) Demand for Reservation to Jats in Government Jobs

    (D) None of the above

93. Mehadei river water dispute is between Karnataka and ....

    (A) Andhra Pradesh   (B) Maharashtra

    (C) Telangana   (D) Goa

94. From which date will the recommendations of 7th Pay Commission be implemented ?

    (A) January 01, 2015   (B) April 01, 2015

    (C) January 01, 2016   (D) April 01, 2016

95. To which state of India does Irom Sharmila who is apposing the Armed Forces

    Special Powers Act (AFSPA) belong ?

    (A) Arunachal Pradesh   (B) Manipur

    (C) Mizoram   (D) Nagaland

96. Who is India's flag bearer at the 2016 Rio Olympics ?

    (A) Anju Bobby George   (B) Sania Mirza

    (C) Abhinav Bindra   (D) Jwala Gutta

97. What is the name of Nepalese bus that runs between Kathmandu and

    Delhi ?

    (A) Durga Express   (B) Shiva Express

    (C) Darbar Express   (D) Pashupati Nath Express

98. What is Auschwitz Brikenau known for ?

(A) Nazi Germany's death camp

(B) Germany's popular stadium

(C) Trial of World War II war criminals

(D) None of the above

99. To which country did Andre Borschberg who was pilot of Solar Impulse-2

belong ?

(A) Poland   (B) Switzerland

(C) Holland   (D) Belarus

100. What is the name of Railway station in South Africa where Gandhiji was

thrown out of train in 1893 AD ?

(A) Durban   (B) Pietermaritzburg

(C) Pretoria   (D) Ladysmith