1. The total area enclosed by the lines is $y = |x|, y = 0$ and $|x| = 1,$ is

(A) 1

(B) 2

(C) 4

(D) None of these

2. The area bounded by the curve $y = \sin x + \cos x$ and the coordinate axes in first quadrant is

(A) 1

(B) 2

(C) 3

(D) None of these

3. The general solution of $\frac{dy}{dx} = ye^x$ is

(A) $y = e^x$

(B) $\ln y = e^x + c$

(C) $y = \ln x + c$

(D) None of these

4. A solution of the differential equation $(\frac{dy}{dx})^2 - x\frac{dy}{dx} + y = 0$ is

(A) $y = 2x$

(B) $y = 2x^2 - 4$

(C) $y = 2$

(D) $y = 2x - 4$

Space for Rough Work

5. If $u = x^y$, then $\frac{\partial u}{\partial y}$ is equal to

(A) yx^{y-1}

(B) $x^y \ln x$

(C) x^y

(D) None of these

6. Which of the following is a statement ?

(A) Do you know Hindi ?

(B) $8 - x = 10$

(C) study mathematics

(D) there will be no power in 25th December.

7. The implication of $p \to q$ for

P : Hari is hungry q : Hari will eat

(A) If Hari is hungry, then he will eat.

(B) If Hari is not hungry then he will not eat.

(C) If Hari will eat then he will not be hungry.

(D) None of these

8. The composite mapping gof of the maps : $f : \mathbb{R} \mapsto \mathbb{R}, f(x) = \sin x, g : \mathbb{R} \mapsto \mathbb{R}, g(x) = x^3$ (here $\mathbb{R}$ is set of real numbers) is

(A) $\sin x^3$

(B) $\sin^3 x$

(C) $x^3 + \sin x$

(D) None of these

9. If $y = 5^x$, then 50th derivative of y is

(A) $(\ln 5)^{49} 5^x$

(B) $(\ln 5)^{48} 5^x$

(C) $(\ln 5)^{50} 5^x$

(D) None of these

Space for Rough Work

10. If $\vec{a} = \hat{i} - \hat{j} + \hat{k}, b = \hat{i} + 2\hat{j} - \hat{k}$ and $\vec{c} = 3\hat{i} + p\hat{j} + 5\hat{k}$ are coplanar, then p is equal to

(A) 6

(B) -6

(C) 2

(D) -2

11. If $\vec{a} = 2\hat{i} + 2\hat{j} + 4\hat{k}, b = -\hat{i} + 2\hat{j} + \hat{k}$ and $\vec{c} = 3\hat{i} + \hat{j}$, then $\vec{a} + t\vec{b}$ is perpendicular to $\vec{c}$ if t is equal to

(A) 2

(B) 4

(C) 6

(D) 8

12. Let α be the angle between the vectors $4(\hat{i} - \hat{k})$ and $\hat{i} + \vec{j} + \hat{k}$, then α is equal to

(A) $\frac{\pi}{4}$

(B) $\frac{\pi}{3}$

(C) $\frac{\pi}{2}$

(D) None of these

13. If $z = \overline{z}$, then

(A) z is real

(B) z is purely imaginary

(C) z is any complex number

(D) None of these

14. $(\overline{z} - a)(z - a)$, where a is real, is equivalent to

(A) $z^2 - a^2$

(B) $|z + a|$

(C) $|z - a|^2$

(D) None of these

Space for Rough Work

15. In an A. P, if the sum of p terms is equal to the sum of q terms, then the sum of $(p+q)$ terms is equal to

(A) $p+q$

(B) $-q$

(C) $-(p+q)$

(D) 0

16. If the sum of n terms of two arithmetic series are in the ratio $7n+1:4n+27$, then their 11^{th} terms are in the ratio

(A) 3 : 4

(B) 4 : 3

(C) 78 : 61

(D) 152 : 119

17. Which of the following pair of straight lines intersect at right angles ?

(A) $2x^2 = y(x+2y)$

(B) $(x+y)^2 = x(y+3x)$

(C) $2y(x+y) = xy$

(D) None of these

18. If the lines $3y+4x=10$, $y=2x$ and $5y+ax=2$, are concurrent, then the value of a is

(A) 6

(B) –7

(C) –9

(D) –8

19. The angle between the lines given by the equation $\lambda y^2 + (1-\lambda^2)xy - \lambda x^2 = 0$ is

(A) 45°

(B) 60°

(C) 15°

(D) 90°

Space for Rough Work

20. If $(3,-2)$ lies on the circle $x^2+y^2+2gx+2fy+c=0$ which is concentric with the circle $x^2+y^2+6x+8y-5=0$, then c is

(A) 15

(B) 26

(C) -15

(D) None of these

21. Which of the following represent a pair of straight lines intersecting at right angle ?

(A) $2x^2=y(x+2y)$

(B) $(x+y)^2=x(y+3x)$

(C) $2y(x+y)=xy$

(D) None of these

22. The equation of a parabola from the followings is

(A) $(x-y)^2=3$

(B) $\frac{x}{y}-\frac{y}{x}=0$

(C) $x+y=10$

(D) $\frac{y}{x}+\frac{4}{y}=0$

23. If the lines $\frac{x-1}{1}=\frac{y+1}{-1}=\frac{z-1}{2}$ and $\frac{x-3}{1}=\frac{y-k}{2}=\frac{z}{1}$ intersect, then k is equal to

(A) 6

(B) 12

(C) 18

(D) None of these

Space for Rough Work

24. The shortest distance from the point $(-1,2,1)$ to the surface of the sphere $x^2 + y^2 + z^2 = 96$ is

(A) $4\sqrt{6}$

(B) $\sqrt{6}$

(C) $3\sqrt{6}$

(D) None of these

25. The angle between the lines $x = 1, y = 2$ and $y = -1,\ z = 0$ is

(A) 90º

(B) 30º

(C) 60º

(D) None of these

26. A straight line passing through (a,b,c) and parallel to y–axis is

(A) $\frac{x-a}{1} = \frac{y-b}{1} = \frac{z-c}{0}$

(B) $\frac{x-a}{0} = \frac{y-b}{1} = \frac{z-c}{0}$

(C) $\frac{x-a}{0} = \frac{y-b}{1} = \frac{z-c}{1}$

(D) None of these

27. 8 men and 8 women are to sit round a table so that there is a man on either side of a woman. Then the number of sitting arrangement is

(A) $(7!)^2$

(B) 64

(C) $(8!)^2$

(D) $7! \times 8!$

Space for Rough Work

28. All the letters of the word AERNET are arranged in all possible ways. Then the number of such arrangement in which no two vowels are adjacent to each other is

(A) 360
(B) 144
(C) 72
(D) 54

29. Let S be a set of five elements. From the set of all functions from S to S, the probability that it is an one-to-one function is

(A) $\frac{4!}{5^4}$
(B) $\frac{1}{5^4}$
(C) $\frac{4!}{5^5}$
(D) None of these

30. The letters of word 'ARTICLE' are placed at random in a row. Then the probability that three vowels come together is

(A) $\frac{1}{7}$
(B) $\frac{3}{7}$
(C) $\frac{6}{7}$
(D) None of these

31. The average of first n natural numbers is

(A) $\frac{2n+1}{2}$
(B) $n-\frac{1}{2}$
(C) $\frac{n-1}{2}$
(D) $\frac{n+1}{2}$

Space for Rough Work

32. The number of terms in the expansion $(a+b+c)^{12}$ is

(A) 13

(B) 39

(C) 91

(D) None of these

33. The least value of the expression $x^2+2\sqrt{2}x+4$ is

(A) 0

(B) 2

(C) $2\sqrt{2}$

(D) None of these

34. If the product of 17 positive numbers is unity, then their sum is

(A) a positive integer

(B) divisible by 17

(C) equal to $17+\frac{1}{17}$

(D) never less than 17

35. In a triangle ABC, if $b+c=3a$, then the value of $(\cot\frac{1}{2}B)(\cot\frac{1}{2}C)$ is

(A) 1

(B) 2

(C) $\sqrt{3}$

(D) 3

Space for Rough Work

36. The solution of the equation $\cos^2\theta + \sin\theta + 1 = 0$, lies in the interval

(A) $(-\frac{\pi}{4}, \frac{\pi}{4})$

(B) $(\frac{\pi}{4}, \frac{3\pi}{4})$

(C) $(\frac{3\pi}{4}, \frac{5\pi}{4})$

(D) $(\frac{5\pi}{4}, \frac{7\pi}{4})$

37. If $2\sec 2\alpha = \tan\beta + \cot\beta$, then one of the values of $\alpha + \beta$ is

(A) $\frac{\pi}{4}$

(B) $\frac{\pi}{2}$

(C) π

(D) None of these

38. $\cot(\frac{\pi}{4} - 2\cot^{-1} 3)$ is equal to

(A) 1

(B) 4

(C) 7

(D) None of these

39. Solution of the equation $\cot^{-1} x + \sin^{-1}\frac{1}{\sqrt{5}} = \frac{\pi}{4}$ is

(A) $x = 3$

(B) $x = \frac{1}{\sqrt{5}}$

(C) $x = 0$

(D) None of these

Space for Rough Work

40. The relation 'greater than' in the set of real numbers is

(A) reflexive only

(B) symmetric only

(C) transitive only

(D) None of these

41. The function $f: N \mapsto N$ (where N is set of natural numbers) defined by $f(n) = 7n + 9$, is

(A) Onto

(B) one-to-one

(C) bijective

(D) None of these

42. The symmetric difference of sets X and Y is (\ denotes set difference)

(A) $(X \setminus Y) \bigcap (Y \setminus X)$

(B) $X \setminus Y$

(C) $Y \setminus X$

(D) $(X \bigcup Y) \setminus (X \bigcap Y)$

43. In a group of 55 people, 30 like cricket, 10 like both cricket and football. Then the number of persons liking football only not cricket is

(A) 11

(B) 15

(C) 25

(D) None of these

44. The number of functions from a set $X = \{1, 2, 3, 4, 5\}$ to set $Y = \{7, 9\}$ is

(A) 32

(B) 20

(C) 30

(D) None of these

Space for Rough Work

45. The range of the function $f(x)=\frac{2x^2}{1+x^2}$ (here both domain and range are set of real numbers) is

(A) $[0,2)$

(B) $[0,2]$

(C) $(0,2)$

(D) None of these

46. Let $X=\{1,2,3,4,5\}$, $Y=\{2,3,6,7\}$. Then the number of elements in $(X\times Y)\bigcap(Y\times X)$ is

(A) 18

(B) 6

(C) 0

(D) 4

47. The number of real solutions of the equation is $x^7+14x^5+16x^3+30x-560=0$ is

(A) 7

(B) 1

(C) 3

(D) None of these

48. The function which has finite number of points of discontinuity is

(A) $\cot x$

(B) $x+[x]$

(C) $\frac{|x|}{x-1}$

(D) None of these

Space for Rough Work

49. If $y = \tan^{-1}(\sec x - \tan x)$, then $\frac{dy}{dx}$ is

(A) $-\frac{1}{2}$

(B) -2

(C) $\frac{1}{2}$

(D) 2

50. $\lim_{x \to 3} \frac{x-3}{|x-3|}$ is equal to

(A) 1

(B) 0

(C) -1

(D) None of these

51. The value of α for which the function $f(x) = \begin{cases} \frac{2^{x+2} - 16}{4^x - 16}, x \neq 2 \\ \alpha, x = 2 \end{cases}$ is continuous at x=2 is

(A) $\frac{1}{2}$

(B) 0

(C) $-\frac{1}{2}$

(D) None of these

52. The derivative of $\sec^{-1}\left(\frac{1}{2x^2 - 1}\right)$ with respect to $\sqrt{1-x^2}$ at $x = \frac{1}{4}$ is equal to

(A) 4

(B) 8

(C) 16

(D) None of these

Space for Rough Work

53. $\lim_{x\to 0}\frac{e^{x^2}-\cos x}{x^2}$ is equal to

(A) $\frac{1}{2}$

(B) $\frac{2}{3}$

(C) $\frac{3}{2}$

(D) None of these

54. $\lim_{x\to 2}\frac{2^x-x^2}{x^x-4}$ is equal to

(A) $\frac{\ln 2-1}{\ln 2+1}$

(B) $\frac{\ln 2+1}{\ln 2-1}$

(C) 1

(D) None of these

55. The function f defined by $f(x)=4x^4-2x+4$ is increasing for

(A) $x<1$

(B) $x>\frac{1}{2}$

(C) $x<\frac{1}{2}$

(D) None of these

56. The line $y=x+1$ is a tangent to the curve $y^2=4x$ at the point

(A) $(1,-2)$

(B) $(2, 1)$

(C) $(1,2)$

(D) None of these

Space for Rough Work

57. If $\int f(x)dx = g(x) + c$, then $\int f(ax+b)dx$ is equal to

(A) $g(ax+b)+c$

(B) $ag(ax+b)+c$

(C) $\frac{1}{a}[g(ax)+c]$

(D) None of these

58. If $y = f(\sin x), f'(0) = 2,$ then $y'(0)$ is equal to

(A) 0

(B) 2

(C) $\frac{1}{2}$

(D) None of these

59. The function $f(x) = \ln(x + \sqrt{x^2+1})$ is

(A) an even function

(B) a periodic function

(C) odd function

(D) None of these

60. The function $f(x) = \frac{x}{2} + \frac{2}{x}$ has a local minimum at

(A) $x = -2$

(B) $x = 0$

(C) $x = 1$

(D) $x = 2$

Space for Rough Work

61. Which one of the following protocol layers is not present in the TCP/ IP model ?

(A) Application layer

(B) Internet Layer

(C) Transport layer

(D) Presentation Layer

62. What would be the value of the variable group at the end of execution of the following C program segment ?

```
int count =9, group;
group = ++count + 5;
```

(A) 14

(B) 12

(C) 11

(D) 15

63. Which one of the following types of errors can be detected by using a simple parity check mechanism ?

(A) Programming logic errors

(B) Divisions by zero

(C) Undefined variables

(D) Memory errors

64. Suppose you needed an Analog to Digital Converter (ADC) that would adequately encode a voltage reading in the range of –5 to +5 volts with a resolution of 500 microvolt. What is minimum number of bits that would be required ?

(A) 13 bits

(B) 14 bits

(C) 15 bits

(D) 16 bits

Space for Rough Work

65. Rules that govern how computers communicate over a network are called :

(A) System standards

(B) Topology

(C) Protocols

(D) Baud rate

66. The Karnaugh map which has been shown on the right hand side represents which one of the following functions ?

A \ BC	00	01	11	10
0	1	0	0	1
1	1	0	0	1

(A) A.(B + C)

(B) AB + BC + CA

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

(D) A.BC

67. If the J and K inputs of a JK flip flop are tied together, then the JK flip flop would behave as which one of the following types of flip flops ?

(A) D flip flop

(B) T flip flop

(C) SR flip flop

(D) Master slave JK flip flop

68. Ethernet LAN signal transmission is an example of :

(A) Baseband transmission

(B) Broadband transmission

(C) Multichannel transmission

(D) Store and forward transmission

Space for Rough Work

69. The functionality of a modem is best described by which one of the following devices ?

(A) A modern computer memory

(B) A device that lets two computers communicate over a telephone line

(C) A network router

(D) A modern optical scanner

70. The binary equivalent of the decimal value of 0.125 will be:

(A) 0. 011

(B) 0.00111

(C) 0.001

(D) 0.1011

71. What will be displayed when the following function fun is called with the parameters $x = 75$ and $y = 35$?

```
int fun(int x, int y){
    while(x!=y)
        if(x>y) x-=y;
        else y-=x;
    printf("%d\n",x);
}
```

(A) 5

(B) 75

(C) 35

(D) 525

72. Suppose 5 printers are connected to a PC. To be able to select any one of the printers from the PC under program control, you would need to use which one of the following devices ?

(A) Multiplexor

(B) Demultiplexor

(C) Codec

(D) Compressor

Space for Rough Work

73. Suppose the binary encoding of an unsigned integer value is n bits long. If it is to be encoded in Octal, how many Octal digits would be required ?

(A) $\lfloor n/8 \rfloor$

(B) $\lceil n/8 \rceil$

(C) $\lceil n/3 \rceil$

(D) $\lfloor n/3 \rfloor$

74. In object-oriented programming, why is establishing inheritance relation among classes considered useful ?

(A) Because it prevents inherited properties from being lost

(B) Because it minimizes the amount of code that has to be written

(C) Because it creates an elegant tree structures

(D) Because it divides objects into a set of useful classes

75. Which one of the following best characterizes the relationship between a class and its public parent class ?

(A) "...is a..."

(B) "...has a..."

(C) "...is implemented as a..."

(D) "...uses a..."

76. What is a "reference" in C++ ?

(A) A synonym for "pointer"

(B) Another name for an object

(C) Another name for a type

(D) A way of copying objects without extra memory

77. Which of the following best characterizes a stream in C++ ?

(A) A flow of control among the methods

(B) A flow of data from one place to another

(C) A file

(D) A device interface

Space for Rough Work

78. Which of the following assertions is TRUE with respect to TCP communication ?

(A) The end points of a TCP connection are two computers.

(B) The packets belonging to the same TCP connection travel through the same route.

(C) TCP is a connection-oriented protocol.

(D) TCP achieves reliable transmission by using error correcting codes.

79. What would be the result of running the following C program:

```
#include <stdio.h>
 void increment( int i ) {
   i++;
 }

   int main() {
    int i;
      for( i = 0; i < 10; increment( i ) );
      printf("i=%d\n", i);
  }
```

(A) It will display i = 10

(B) It will display i = 9

(C) It will display i = 11

(D) It will loop indefinitely

80. What is the main function of the transport layer in the TCP/IP protocol suite ?

(A) Node to node packet delivery

(B) End to end message delivery

(C) Synchronization

(D) Secure transmission

Space for Rough Work

81. Suppose it is necessary to have a main memory of size 8 Mbyte. What is the number of 256K × 1bit memory chips that would be required to construct this ?

(A) 128

(B) 1024

(C) 256

(D) 32

82. A memory unit has a 16-bit address bus. What is the possible maximum number of locations in this memory unit ?

(A) 16

(B) 1024

(C) 16,024

(D) 65,536

83. The size of a file is 10 KBytes. What is the size of the file in bits ?

(A) 10,000

(B) 81,920

(C) 10,240

(D) 80,240

84. The width of a rectangle was increased by 50% and the length was decreased by 20%. What would be the percentage increase in the area of the rectangle ?

(A) 20%

(B) 40%

(C) 80%

(D) 100%

85. Which one among the following types of memories has the least access time ?

(A) ROM

(B) DRAM

(C) Hard disk

(D) CD-ROM

Space for Rough Work

86. In an examination, 42% students failed in Science and 52% failed in History. If 17% failed in both subjects, what would be the percentage of students who passed in both subjects ?

(A) 23%
(B) 27%
(C) 34%
(D) 40%

87. Which one of the following word has the meaning opposite of the word ENEMY ?

(A) Fight
(B) Peace
(C) Foe
(D) Battle

88. A pen drive stores data using which one of the following types of memories ?

(A) Optical
(B) Magnetic
(C) Semi-conductor
(D) Hybrid nano composites

89. What is the size allocated to a single ASCII character in a C program ?

(A) 1 byte
(B) 2 bytes
(C) 4 bytes
(D) The size varies from computer to computer

90. Which one of the following pairs of words has a relationship that is most similar to the relationship between the pair of words AVIARY : BIRDS ?

(A) School : Fish
(B) Desert : Camel
(C) Garden : Weeds
(D) Coop : Chickens

Space for Rough Work

91. Which one of the following is the traditional name of the operation for adding an entry to a stack ?

(A) add
(B) append
(C) insert
(D) push

92. In which one of the following addressing modes, the operand is specified as a part of the instruction ?

(A) Immediate
(B) Autoincrement
(C) Implied
(D) Register

93. In which one of the following networking situations is the use of star topology inferred ?

(A) Computers are arranged in a closed loop.
(B) All computers are attached to a central point .
(C) All computers are attached to a single long cable.
(D) Computers are attached to multiple hierarchical cables.

94. A multiplexer is an example of which one of the following types of Boolean circuits ?

(A) Sequential
(B) Combinational
(C) Moore machine
(D) Analog

95. What would be the output produced when the following program segment is executed ?

```
int x=2, y=5, z=11, result=5;
result -= x/5 *y + 3 * x;
printf( "%d\n", result );
```

(A) 5
(B) 6
(C) – 1
(D) – 6

Space for Rough Work

96. Which one of the following indicates the correct ordering of the operations carried out by a CPU in an instruction execution cycle ?

(A) Decode, fetch, execute.

(B) Execute, decode, fetch.

(C) Fetch, execute, decode.

(D) Fetch, decode, execute.

97. The Boolean expression A+BC equals to which one of the following ?

(A) (A+B)(A+C)

(B) (A'+B)(A'+C)

(C) (A+B)(A'+C)

(D) (A+B)C

98. How many 1's are there in the following sequence which are immediately preceded by 9 but not immediately followed by 7 ?

7 1 9 1 1 7 1 8 9 1 7 1 2 1 3 1 1 4 5 7 1 3 9 1 7

(A) One

(B) Two

(C) Three

(D) None

99. A man has certain number of small boxes to pack into parcels. If he packs either 3, 4, 5 or 6 boxes per parcel, he is left with one. But if he packs 7 boxes per parcel, none is left out. What is the number of boxes he is having to pack ?

(A) 106

(B) 301

(C) 309

(D) 400

Space for Rough Work

100. Formatting a hard disk refers to which one of the following ?

(A) Creating the directories

(B) Erasing the tracks and sectors

(C) Arranging the existing data to be contiguous

(D) Writing identification number on all tracks and sectors

101. Suppose x and y are two natural numbers and $6x + 11y = 112$, then which one of the following is TRUE ?

(A) y is always odd.

(B) y is always even.

(C) y is even only if x is odd.

(D) y is odd only if x is even.

102. Which one of the following is guaranteed by UDP ?

(A) Non-duplication of data

(B) In-order delivery

(C) Error-free delivery

(D) Reliable delivery

103. A station in a LAN is identified by its which address ?

(A) MAC Address

(B) LLC Address

(C) IP Address

(D) TCP Address

104. Which of the following digital circuits can be used to store one bit of data ?

(A) Multiplexer

(B) Encoder

(C) Flip Flop

(D) Decoder

Space for Rough Work

105. The complexity of the Bubble sort algorithm is given by which one of the following ?

(A) O(n)

(B) O(log n)

(C) $O(n^2)$

(D) O(n log n)

106. A heap can be said to be which of the following ?

(A) Stack

(B) Queue

(C) Tree

(D) Circular list

107. Recursive procedure calls are usually implemented by the C runtime environment using which of the following data structures ?

(A) Queue

(B) Stack

(C) Linked list

(D) Strings

108. Which of the following can be said to be the core responsibility of an operating system ?

(A) Providing a graphical user interface

(B) Providing device drivers

(C) Executing user programs instruction by instruction

(D) Managing the computer's resources

109. What is the worst-case time for finding a single item in a sorted array of items using binary search ?

(A) Constant time

(B) Linear time

(C) Logarithmic time

(D) Quadratic time

Space for Rough Work

110. What does the following function compute ?

```
int trial(int a, int b, int c){
   if(a>=b)
     if(c<b) return b;
     else return trial(a,c,b);
   else return trial(b,a,c);
}
```

(A) Minimum of a,b,c

(B) Maximum of a,b,c

(C) Middle number among a,b,c

(D) GCD of a,b,c

111. What are the typical capacities of the main memory and the hard disk of a modern PC ?

(A) Main memory = 1GB and hard disk = 500GB

(B) Main memory = 1MB and hard disk = 20MB

(C) Main memory = 15KB and hard disk = 200MB

(D) Main memory = 20GB and hard disk = 800TB

112. How many times would the following while loop execute ?

```
char a='a';
while(a > 'a' && a <= 'z')      a++;
```

(A) 0

(B) 1

(C) 25

(D) 26

Space for Rough Work

113. Suppose 800 unique integer values have been stored in ascending order in an array. What is the number of comparisons required to check whether a specific value is present in the array using binary search ?

(A) 8

(B) 9

(C) 10

(D) 11

114. Extra memory of size O(n) is needed in which of the following sorting algorithms ?

(A) Bubble sort

(B) Merge sort

(C) Insertion sort

(D) Quick sort

115. Arrange the following types of memories in the increasing order of their access times. That is, the memory with lowest access time should appear first and the memory with highest access time appear last in the sequence.

(i) CPU registers

(ii) RAM

(iii) Hard disk

(iv) Cache Memory

(A) (i), (ii), (iii), (iv)

(B) (iii), (i), (ii), (iv)

(C) (i), (iii), (iv), (ii)

(D) (i), (iv), (ii), (iii)

116. Which one of the following input state causes a JK flip-flop to toggle its output ?

(A) J = 0, K = 0

(B) J = 0, K = 1

(C) J = 1, K = 0

(D) J = 1, K = 1

Space for Rough Work

117. What is the 2's complement representation using 8-bit representation of the decimal number 43 ?

(A) 01010101

(B) 11010101

(C) 00101011

(D) 10101011

118. When two n bit binary numbers are added, the sum will contain at the most how many bits ?

(A) n bits

(B) n+1 bits

(C) n+2 bits

(D) n+n bits

119. For a certain computer, the access times for cache and main memory are 100 ns and 1000 ns respectively. Assume that the hit ratio of finding the contents of a requested address in the cache is 80% and that no page faults occur. What is the average memory access time ?

(A) 240 ns

(B) 220 ns

(C) 280 ns

(D) 200 ns

120. Which one of the following denotes the technique wherein part of the program is stored on disk and is brought into memory for execution as needed ?

(A) Memory allocation

(B) Virtual memory

(C) Interrupts

(D) Prioritized memory

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