Question Paper of JNU MCA 2018 by JMA

1. Find the solution of $\lim\limits_{\theta \to 0} \dfrac{\sin\theta}{\theta}$

   (a) 0   (b) 1   (c) θ (d) ½

2. To remove a relation in SQL database we use _____ command.

   (a) Remove   (b) Purge   (c) Deleted   (d) Drop table

3. $\int \log x\, dx$

   (a) $x \log (x / e)$ (b) $x \log (e/x)$ (c) $x \log x$ (d) $1/x$

4. Which is not a leap year ?

   (a) 700   (b) 800   (c) 1200   (d) 2000

5. If 4 coins are thrown together then probability that at least one head occurs

   (a) $\dfrac{5}{16}$ (b) $\dfrac{3}{8}$ (c) $\dfrac{1}{16}$ (d) $\dfrac{15}{16}$

6. Which is not a irrational number

   (a) π (b) $\sqrt{2}$ (c) $\sqrt{3}$ (d) $\sqrt{4}$

7. Convergence sequence has limit

   (a) only one limit   (b) only two limit   (c) only Three limit   (d) None

8. The operation through NOT GATE is also

   (a) Converting   (b) Inverting   (c) Reverting   (d) Reversing

9. A is 3 year older than C & 3 year younger than B. If B & D both are twins, than how many years C is younger than D.

   (a) 8   (b) 6   (c) 7   (d) none

10. Statement : All mango is golden colour.

            No golden colour things are cheap.

    Conclusion : I. All mangoes are cheap.

           II. Golden coloured mangoes are not cheap.

(a) Only Conclusion I is true

(b) Only Conclusion II is true

(c) either conclusion I or II is true

(d) Neither conclusion I nor II is true.

11. Find the eigen vector corresponding to eigen value $\lambda = 2$ for the matrix $A = \begin{bmatrix} 5 & 3 \\ 2 & 4 \end{bmatrix}$

(a) $\begin{bmatrix} 3 \\ 2 \end{bmatrix}$
        (b) $\begin{bmatrix} 3 \\ -2 \end{bmatrix}$
        (c) $\begin{bmatrix} 1 \\ -1 \end{bmatrix}$
        (d) $\begin{bmatrix} 1 \\ 1 \end{bmatrix}$

12. If $u = \tan^{-1}\left[\dfrac{x^3 + y^3}{x + y}\right]$ then find the value of $x\dfrac{\partial u}{\partial x} + y\dfrac{\partial u}{\partial y}$?

(a) sin u
        (b) sin 2u
        (c) cos u
        (d) cos 2u

13. If integer 2 bytes of storage, then what is the maximum value of unsigned integer.

(a) $2^{16} - 1$
        (b) $2^{15} - 1$
        (c) 2^{15}
        (d) 2^{16}

14. The given equation of the circle $x^2 + y^2 + 2x + 2ky + 6 = 0$ & $x^2 + y^2 + 2ky + k = 0$ intersect each other orthogonally, then find the value of k

(a) -2, -3/2
        (b) 2, -3/2
        (c) 2, 3/2
        (d) -2, 3/2

15. If $f(x) = x^2 + \dfrac{x^2}{1 + x^2} + \dfrac{x^2}{\left(1 + x^2\right)^2} + \ldots\ldots \dfrac{x^2}{\left(1 + x^2\right)^n} + \ldots$ then at x = 0

(a) $\lim\limits_{x \to 0} f(x)$ does not exists

(b) $\lim\limits_{x \to 0} f(x)$ exists but f(x) is not continuous

(c) f(x) is continuous

(d) None of these

16. The last term of the sequence 8, 6, 9, 23, 87,___ ?

(a) 128
        (b) 224
        (c) 324
        (d) 429

17. If M = a cos θ + b sin θ and n = a cos − b sin θ then find the value of $m^2 + n^2$ = ?

(a) $(ab)^2$ (b) $(a + b)^2$ (c) $a^2 + b^2$ (d) 1

18. The two no's are in the ratio 3 : 5 if 9 is subtracted from each of the 2 no's, then the new no's are in the ratio 12 : 23, then the smaller no. is

(a) 52   (b) 33   (c) 41   (d) 27

19. The angle of elevation of sun when shadow of tree is equal to 3 times of the height of the tree is

(a) 30º   (b) 60º   (c) 45º   (d) 90º

20. If the equation $ax^2 + bx + c = 0$ has repeated roots. Then find the relation between coefficients.

(a) $\left(\dfrac{b}{2}\right)^2 = c$ (b) $\left(\dfrac{b}{2}\right)^2 = ac$ (c) $\dfrac{a^2}{2} = bc$ (d) $\left(\dfrac{a}{2}\right)^2 = bc$

21. A pair of dice (faces marked upto 1 to 6) is thrown then what is the chance of obtaining 6 on one of them give that the sum of the no's on the 2 dice is 8.

(a) $\dfrac{35}{36}$ (b) $\dfrac{5}{36}$ (c) $\dfrac{2}{5}$ (d) $\dfrac{4}{5}$

22. The equation $x^3 + x^2 + x + 1$ when divided by $x^2 + x + 1$ leaves the remainder

(a) x   (b) x + 1   (c) 0   (d) 1

23. $\displaystyle\int_0^{\pi/2} \dfrac{\sqrt{\sin x}}{\sqrt{\sin x} + \sqrt{\cos x}} dx$

(a) $\dfrac{\pi}{2}$ (b) $\dfrac{\pi}{4}$ (c) π (d) 0

24. A relational database consist of a collection of

(a) Table   (b) fields   (c) Records   (d) keys

25. Consider the line passing through (1, 2) & (4, 8) then the gradient is equal to

(a) ½   (b) 2   (c) -1/2   (d) -2

26. What is the full form of SQL

(a) Standard Query Language   (b) Sequential Query Language

(c) Structured Query Language   (d) Server side query language

27. Value of $\left| \dfrac{1}{2} \right.$

    (a) $\sqrt{\pi}$ (b) π (c) $\sqrt{\dfrac{\pi}{2}}$ (d) $\dfrac{\pi}{2}$

28. If $\sin \theta + \cos \theta = 1$ then find the value of $\sin 2\theta$.

    (a) 0   (b) 1   (c) 2   (d) None

29. Matrix $\begin{bmatrix} 1 & 1 & 1 \\ 1 & 1 & 2 \\ 1 & 1 & 4 \end{bmatrix}$ satisfies which of the following properties

    (a) orthogonal   (b) Invertible   (c) Symmetric   (d) Singular

30. nth derivative of the term $\sin(ax + b)$

    (a) $a \sin(ax + b + n\pi)$ (b) $a^n \sin(ax + b + n\pi/4)$

    (c) $a^n \sin(ax + b + n\pi/2)$ (d) $a^n \sin(ax + b + 2n\pi)$

31. The sequence $\dfrac{(-1)^n}{n}$ is

    (a) Divergent   (b) Convergent   (c) Bounded   (d) Unbounded

32. Sum of product can be implemented by the group of

    (a) OR Gate   (b) AND Gate   (c) NOT Gate   (d) XOR Gate

33. Which of the following is not true about zero.

    (a) Even   (b) Positive

    (c) Additive identity   (d) Additive inverse & zero

34. In $u = \tan\left(\dfrac{\pi}{4} + \dfrac{\theta}{2} \right)$ then find the value of $\tanh \dfrac{u}{2}$

    (a) $\tan \theta$ (b) $\tan \theta /2$ (c) $\tan \theta /4$ (d) $\tan 2\theta$

35. How many different committee of 3 people in a class room of 10 students ?

    (a) 120   (b) 24   (c) 20   (d) 12

36. Eigen value of the matrix $\begin{bmatrix} 4 & 1 \\ -1 & 2 \end{bmatrix}$

(a) 3, 3 (b) 4, 2 (c) 1, -1 (d) -3, 3

37. If $Y = x^{x^{x^{\cdots\infty}}}$ then find $x\dfrac{dy}{dx} = ?$

(a) $\dfrac{Y^2}{1 - Y\log x}$ (b) $\dfrac{Y^2}{Y\log x - 1}$ (c) $\dfrac{Y}{1 - Y\log x}$ (d) $\dfrac{Y^2}{1 + Y\log x}$

38. Father of C language is
(a) James Gosline (b) B. Jarne stroutup
(c) Dennis Ritchie (d) Dr. E.F. Codd

39. If a plane passes through the point (2, 3, -1) & it is right angle to OP where O is origin then find the equation of the plane which is perpendicular to OP & passes through P.
(a) $2x + 3y - z = 14$ (b) $2x + 3y + z = 14$
(c) $2x - 3y - z = 14$ (d) $2x - 3y + z = 14$

40. Numbers of solution in $\begin{bmatrix} 1 & 0 & 5 \\ 0 & 1 & 6 \\ 1 & 0 & 5 \end{bmatrix} x = \begin{bmatrix} 1 \\ 2 \\ 3 \end{bmatrix}$

(a) 0 (b) 1 (c) Infinite (d) None of these

41. Find the greatest common division of $3^{13} \times 5^{17}$ & $2^{12} \times 3^5$ is
(a) 3^0 (b) 3^1 (c) 3^2 (d) 3^5

42. The worst case running time to quick sort is
(a) $0\,(\log n)$ (b) $o\,(n \log n)$ (c) $0(n)$ (d) $0(n^2)$

43. Find the value of determinant $\begin{vmatrix} 1 & 2 & 4 \\ 1 & 3 & 9 \\ 1 & 4 & 16 \end{vmatrix}$

(a) 3 (b) 2 (c) 1 (d) 0

44. If 75% students in class study probability & 30% of the students study statistics & the students who study both probability & statistics is 20%, then find the probability of students who either study statics & probability is

   (a) 75%   (b) 85%   (c) 95%   (d) none

45. I : If enrollment of class A is higher than B

   II : If enrollment of class C is lower than B

   III : Enrollment of A is lower than C

   If I and II are true then III is

   (a) True   (b) Uncertain   (c) False   (d) None of these

46. Find the letter which will come in the place of question mark ?

   (a) F   (b) G   (c) H   (d) I

47. Which is the smallest integer $\left[\dfrac{1+i}{1-i}\right]^n = 1$ where $i^2 = -1$

   (a) 2   (b) 3   (c) 4   (d) 5

48. Let a & b are the 2 vectors given by $\vec{a} = 2\hat{i} - 3\hat{j} - \hat{k}$ & $\vec{b} = \hat{i} + 4\hat{j} - 2\hat{k}$ then the cross product $\vec{a} \times \vec{b}$ is

   (a) $10\hat{i} - 3\hat{j} + 11\hat{k}$ (b) $10\hat{i} + 3\hat{j} - 11\hat{k}$

   (c) $10\hat{i} - 3\hat{j} - 11\hat{k}$ (d) $10\hat{i} + 3\hat{j} + 11\hat{k}$

49. The convergence of the following method is sensitive to the starting value is,

   (a) False Position Method   (b) Gauss Siedal Method

   (c) Newton Ralphson   (d) All of these

50. $x(x - y)dy + y^2 dx = 0$, the solution of differential equation is

   (a) $y = ce^{y/x}$ (b) $y = ce^{x/y}$ (c) $y = cxe^{y/x}$ (d) $x = cye^{y/x}$

51. Find the significant no. of digits in 204.020050

    (a) 5   (b) 6   (c) 8   (d) 9

52. What is the last group of the series :
    JAK KBL LCM MDN ____

    (a) OPS   (b) QFN   (c) NEO   (d) PAQ

53. What is the postfix expression of infix expression A + B * C

    (a) AB + C*   (b) ABC *+   (c) +AB*C   (d) ABC+*

54. Which of the following applies to the bisection method which is required for finding roots :
    (a) Converging to all other function
    (b) Guaranteed work to all other function.
    (c) It is faster than Newton Ralphson's Method
    (d) Require that there to be a non-determination position value

55. If for real value of a $\cos \theta = x + \dfrac{1}{x}$ then

    (a) θ is acute angle   (b) θ is obtuse angle
    (c) θ is right angle   (d) No value of θ is possible

56. Here some words translated for artificial language
    Granamelke means big tree
    Pinimelke means little tree
    Melkehoon means tree house
    Which word would mean big house

    (a) Granahoon   (b) Pinihoon   (c) Granamelke   (d) Melkepini

57. The pointer pointing to "NOTHING" is called
    (a) VOID Pointer   (b) DANGLING Pointer
    (c) NULL Pointer   (d) WILD Pointer

58. Which of the following join condition contains the equality operator
    (a) Equijoins   (b) Natural join   (c) Cartesian join   (d) Left Join

59. The degree of Multiprogramming is
    (a) No. of process in ready queue
    (b) No. of process executed per unit time
    (c) No. of process in I/O
    (d) No. of process in memory.

60. How many time you write digit 3 between 1 to 100 ?
    (a) 11   (b) 18   (c) 20   (d) 21

61. If 100 cats kill 100 mice in 100 days then 4 cats kill 4 mice in how many days
    (a) 10   (b) 4   (c) 40   (d) 100

62. x = 101100, y = 1000011, then find x – y using 2's complement
    (a) 1010001   (b) 1100101   (c) 100110   (d) 10001

63. Cost of pineapple is 7 rs. & cost of watermelon is 5 rs. & X spent 38 rs on these fruits, then how many pineapples were bought by X ?
    (a) 2   (b) 3
    (c) 4   (d) Data inadequate

64. $(256)^{0.16} \times (256)^{0.09}$
    (a) 4   (b) 16   (c) 64   (d) 128

65. Find the focus of the parabola $y = -2 (x + 4)^2 - 1$
    (a) (2, 8/11)   (b) (-2, -8/11)   (c) (4, 9/8)   (d) (-4, -9/8)

66. The no. of attributes in a relation is called as :
    (a) Cardinality   (b) Degree   (c) Tuple   (d) Entity

67. If x = -1 is a root of the equation $x^3 - 4x^2 - 89x - 84$ then another root is
    (a) 12   (b) 7   (c) 3   (d) 6

68. If α, β are the roots of the equation $x^2 + 7x + 8 = 0$ then what is the value of $\alpha^2 + \beta^2 + \alpha.\beta$
    (a) 7   (b) 17   (c) 41   (d) 49

69. The most significant bit with arithmetic addition is called
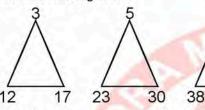
(a) Overflow   (b) Carry   (c) Output   (d) Zero

70. If element ABCD are inserted into the stack then what the sequence to removal.

(a) ABCD   (b) DCBA   (c) DCAB   (d) ACBD

71. Choose the odd one out

(a) Lotus   (b) Rose   (c) Bud   (d) Tulip

72. $\left[\dfrac{1}{\log_4 120} + \dfrac{1}{\log_5 120} + \dfrac{1}{\log_6 120} + ... \right]$

(a) 0   (b) 1   (c) 5   (d) 120

73. If θ be the angle between $\vec{a}$ and $\vec{b}$ then what is the value of $\sin \theta/2$?

(a) $\dfrac{1}{2}|\vec{a} - \vec{b}|$ (b) $\dfrac{1}{2}|\vec{a} + \vec{b}|$ (c) $|\vec{a} + \vec{b}|$ (d) $|\vec{a} - \vec{b}|$

74. Let R be a relation on N = {1, 2, 3,......} defined by R = {(x, y) : x + 2y = 10} x $\in$ N and y $\in$ N then relation R is

(a) Reflexive   (b) Symmetric   (c) Antisymmetric   (d) Transitive

75. What is the next successive value of x_1 for the function $f(x) = x^2 - 2$ where $x_0 = 1$, by using Newton Raphson's method

(a) 1.315   (b) 1.5   (c) 2   (d) 2.5

76. What is process

(a) Program in secondary memory

(b) Program in execution

(c) Program in high level language kept in memory disk

(d) Program in main memory

77. If A and B are two non empty sets having 5 elements in common, then the number of elements common in A × B and B × A is

(a) 2^5 (b) 5^2 (c) 10   (d) 9

78. Consider a universal set U = {1, 2, 3, 4, 5} & set A = {1, 5} & set B = {1, 2, 3, 4}. Then set $A \cup \bar{B}$ is

    (a) {1, 2, 3, 4, 5}   (b) {1, 3, 5}   (c) {2, 3, 4}   (d) {1, 5}

79. If has been established that

    P : Einstein was

    Q : Although a great scientist

    R : Weak in arithmetic

    S : Right from his school days

    The correct sequence is

    (a) SRPQ   (b) QPRS   (c) QPSR   (d) RPQS

80. Runtime mapping from virtual to physical memory is done by :

    (a) Memory Management   (b) CPU

    (C) PCI   (d) None

81. Match the pair :

    (A) Newton Raphson   (1) Integration

    (B) Runge's Kutta   (2) Differential equation

    (C) Gauss Seidal   (3) For finding root

    (D) Simpson Rule   (4) Solution of linear equation

    Which of the following is correct :

    (a) A B C D   (b) A B C D   (c) A B C D   (d) A B C D

        2 3 4 1   3 4 1 2   4 1 2 3   1 2 3 4

82. Find the missing letters :

53	J	49
82	X	37
36	L	15
14	?	98

    (a) B   (b) C   (c) E   (d) D

83. Find the missing term :

    3   5   8

  12   17   23   30   38   ?

(a) 45   (b) 46   (c) 47   (d) 44

84. Given operation $p \otimes q$ shows

p	q	$p \otimes q$
T	T	T
T	F	F
F	T	F
F	F	F

(a) conjunction   (b) disjunction   (c) Negation   (d) Injection

85. If $x = r \cos \theta$ and $y = r \sin \theta$ then find the value of $\left(\dfrac{\partial r}{\partial x}\right)^2 + \left(\dfrac{\partial r}{\partial y}\right)^2$

(a) 0   (b) 1   (c) 2   (d) 3

86. In a binary search tree which of the following traversal would print the list in ascending order

(a) Level order traversal   (b) Pre order traversal

(c) Post order traversal   (d) In order traversal

87. The curved surface area of hemisphere is 175 cm^2. What is the radius of the hemisphere

(a) 3.25   (b) 3.48   (c) 3.38   (d) 5.28

88. Choose the appropriate deadlock avoidance algorithm

(a) Round Robin Algorithm   (b) Bankers algorithm

(c) Elevator algorithm   (d) Karn's Algorithm

89. A unit vector perpendicular to the plane of $2\hat{i} - 6\hat{j} - 3\hat{k}$ & $4\hat{i} + 3\hat{j} - \hat{k}$ is

(a) $\dfrac{3}{7}\hat{i} - \dfrac{2}{7}\hat{j} + \dfrac{6}{7}\hat{k}$

(b) $\dfrac{3}{7}\hat{i} + \dfrac{2}{7}\hat{j} + \dfrac{5}{7}\hat{k}$

(c) $\dfrac{3}{7}\hat{i} - \dfrac{4}{7}\hat{j} + \dfrac{6}{7}\hat{k}$

(d) $-\dfrac{3}{7}\hat{i} - \dfrac{4}{7}\hat{j} - \dfrac{6}{7}\hat{k}$

90. The word "break" is not used in

(a) If else   (b) do while   (c) for   (d) while

91. If the edges of parallelopiped are the vectors $\hat{i} + \hat{j} - \hat{k}$, $2\hat{i} + 3\hat{j}$, $\hat{i} - 3\hat{k}$ then what is volume of parallelopiped

(a) 1   (b) 4   (c) 8   (d) 6

92. Which of the following commutative

(a) Subtraction of real number

(b) Division of +ve numbers

(c) Multiplication of n × n matrix

(d) Addition of n × m matrix

93. How many digits are used in numbering a book of 366 pages ?

(a) 1093   (b) 90   (c) 990   (d) 1305

94. What is the minimum of 2 input NAND Gate is used to perform the function of 2 input OR Gate ?

(a) one   (b) two   (c) three   (d) four

95. Link list contain two fields one filed is used to store the date, for what the second field is used for :

(a) Pointer of character

(b) Pointer to integer

(c) Pointer to Node

(d) Node

96. The surface area of the solid generated by revolution of $x^2 + (y - b)^2 = a^2$, $b \geq a$ rotated about x-axis is

(a) $\pi^2 ab$ (b) $2\pi^2 ab$ (c) $3\pi^2 ab$ (d) $4\pi^2 ab$

97. Time quantum is used in

    (a) Shortest Job first   (b) Round Robin Scheduling

    (c) Priority Scheduled   (d) None

98. Find the value of scalar m, if vector $2\hat{i} + m\hat{j} + \hat{k}$ & $4\hat{i} - 2\hat{j} - 2\hat{k}$ are perpendicular

    (a) 2   (b) 1   (c) 3   (d) 5

99. Which one of the following is not a reserved key for C ?

    (a) Auto   (b) Case   (c) Main   (d) Default

100. What arrangement can be made in 3 identical blue balls & 2 identical green balls in a straight line

    (a) 120   (b) 24   (c) 20   (d) 10