Basic Mathematics MCQ

1. $\log 32 \div \log 2 =$_____
   A. 5
   B. 3
   C. 4
   D. 27

2. $\log 1.\log 2.\log 3.\log 4 \ldots\ldots \log 2020 =$_____
   A. $\log(1.2.3.4 \ldots . 2020)$
   B. $1.2.3.4 \ldots . 2020$
   C. 0
   D. 1

3. $\log a + \log b =$_____
   A. $\log(ab)$
   B. $\log(a+b)$
   C. $\log(a-b)$
   D. $\log(a/b)$

4. $9^{\log_3 7} =$ _____
   A. 9
   B. 1
   C. 7
   D. 49

5 $\log_x y^2 \log_y x =$_____

A. 3
B. 1
C. 2
D. 0

6 $\log 2(\log 3(\log_4 64))=$_____

A. 1
B. 0
C. 2
D. 3

7 log(a/b)=_____

A. $\log a - \log b$
B. $\log(a+b)$
C. $\log(a-b)$
D. $\log(a/b)$

8 If $\log\left(\frac{a+b}{2}\right) = \frac{1}{2}(\log a + \log b)$ then=_____

A. $a^2 + b^2 = 1$
B. $a^2 + b^2 = 6ab$
C. $a + b = 1$
D. a = b

9 $\log_{10} \frac{1}{10000}$ = _____

A. 3
B. -3
C. 4
D. -4

10 $\log_3 27$ = _____

A. 2
B. 3
C. 4
D. 5

11 If $A=\begin{bmatrix}-1 & -3\\ 6 & 2\end{bmatrix}$ then adjA=_____

A. $\begin{bmatrix}2 & -3\\ 6 & -1\end{bmatrix}$

B. $\begin{bmatrix}-1 & -3\\ 6 & 2\end{bmatrix}$

C. $\begin{bmatrix}-1 & 3\\ -6 & 2\end{bmatrix}$

D. $\begin{bmatrix}2 & 3\\ -6 & -1\end{bmatrix}$

12 If $A=\begin{bmatrix}9\\ 5\end{bmatrix}$ then A^T=_____

A. $[9\ \ 5]$

B. $[5\ \ 9]$

C. $\begin{bmatrix}9\\ 5\end{bmatrix}$

D. $\begin{bmatrix}5\\ 9\end{bmatrix}$

13 Total member of I_3=_____

A. 3

B. 6

C. 4

D. 9

14 If $A=\begin{bmatrix}2 & 4\\ 5 & 7\end{bmatrix}$ and $B=\begin{bmatrix}1 & 9\\ 4 & 1\end{bmatrix}$then A+B=_____

A. $\begin{bmatrix}3 & 13\\ 1 & 6\end{bmatrix}$

B. $\begin{bmatrix}3 & 13\\ 9 & 6\end{bmatrix}$

C. $\begin{bmatrix}3 & 13\\ 9 & 8\end{bmatrix}$

D. $\begin{bmatrix}3 & 13\\ 6 & 8\end{bmatrix}$

15 If $\begin{bmatrix}x-3 & 4\\ 3 & 0\end{bmatrix}=\begin{bmatrix}0 & 4\\ 3 & 0\end{bmatrix}$ then x = _____

A. 2

B. 1

C. 4

D. 3

16 The order of the matrix $\begin{bmatrix} 5 & -7 \\ 0 & 1 \\ 7 & 6 \end{bmatrix}$ is_____

A. 2×3
B. 3×3
C. 3×2
D. 2×2

17 Matrix $A=[3 \;\; 4 \;\; 9]$ is _____matrix

A. Square
B. Row
C. Column
D. Identity

18 If A is a square matrix then, $A-A^T$ is _____ matrix

A. Symmetric
B. Skew – Symmetric
C. Row
D. Diagonal

19 If $A=\begin{bmatrix} 9 & 5 \\ -4 & 3 \end{bmatrix}$ then adj(adjA)=_____

A. −A
B. A
C. I
D. 0

20 If $A = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ then A^2=_____

A. $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$
B. $\begin{bmatrix} 1 & 0 \\ 1 & 1 \end{bmatrix}$
C. $\begin{bmatrix} 1 & 0 \\ 1 & 0 \end{bmatrix}$
D. $\begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$

21 If $A=[2 \quad 1 \quad 4]$ and $B=\begin{bmatrix}1\\3\\0\end{bmatrix}$ then A.B=_____

A. 5
B. -5
C. 0
D. 9

22 If order of matrices A and B are $p\times q$ and $q\times r$ respectively then AB is of order____

A. $p\times q$
B. q×p
C. $p\times$r
D. r×p

23 The inverse of square matrix A is exist if_____

A. $|A|\neq 0$
B. $|A|=0$
C. $A= I$
D. $A=A^{-1}$

24 If $A=\begin{bmatrix}2 & 4\\4 & -1\end{bmatrix}$ then $A+A^T$=_____

A. 2A
B. A
C. I
D. 0

25 If A is non-singular matrix then _____

A. $A^T=A$
B. $A^T=-A$
C. $|A|\neq 0$
D. $|A|=0$

26 _____is symmetric matrix.

A. $\begin{bmatrix}5 & 3\\-3 & 5\end{bmatrix}$
B. $\begin{bmatrix}5 & 3\\3 & 5\end{bmatrix}$
C. $\begin{bmatrix}5 & -3\\3 & 5\end{bmatrix}$
D. $\begin{bmatrix}3 & 3\\5 & 5\end{bmatrix}$

27 Principal diagonal element of $\begin{bmatrix} -1 & 5 \\ 1 & 0 \end{bmatrix}$=_____

A. (0,5)
B. (1,5)
C. (5,0)
D. (-1,0)

28 180°=_____radian

A. $2\pi/3$
B. $3\pi/2$
C. π
D. 4π

29 Principal period of $\cos(5-2x)$=_____

A. 2π
B. 5π
C. π
D. $-\pi$

30 $\sin(-\theta)$=_____

A. $\cos\theta$
B. $\sin\theta$
C. $-\sin\theta$
D. $-\cos\theta$

31 $\tan(\pi-\theta)$=_____

A. $\tan\theta$ B. $\cot\theta$
C. $-\cot\theta$ D. $-\tan\theta$

32 $\sin 120°$=_____

A. 0
B. 1
C. $\frac{\sqrt{3}}{2}$
D. $\frac{1}{2}$

33 $1 + \tan^2\theta$ = _____

A. $\sin^2\theta$
B. $\cos^2\theta$
C. $\sec^2\theta$
D. $\operatorname{cosec}^2\theta$

34 Sin (A + B) = _____

A. Sin A. Cos B + Cos A. Sin B
B. Cos A. Cos B – Sin A. Sin B
C. Sin A. Sin B + Cos A. Cos B
D. Sin A. Cos B – Cos A. Sin B

35 cot210°=_____

A. 1
B. 0
C. -1
D. $\sqrt{3}$

36 For ΔABC , $\sin(B+C)$=_____

A. Sin A
B. Sin B
C. Sin C
D. π

37 If A=$\frac{\pi}{2}$ then cos 2A=_____

A. 1
B. -1
C. 0
D. $\frac{1}{\sqrt{2}}$

38 If tan α=1/2 and tanβ=1/3 then tan(α+β)=_____

A. 1
B. $\frac{\sqrt{3}}{2}$
C. $\frac{1}{\sqrt{2}}$
D. 0

39 $\cos^{-1}\frac{\sqrt{3}}{2}$ = _____

A. $\frac{\pi}{6}$
B. $\frac{\pi}{3}$
C. $\frac{\pi}{2}$
D. π

40 2. Cos . Sin θ = _____

A. Sin 3 θ
B. Sin 2 θ
C. 2sin θ
D. Sin 4 θ

41 If $sec\theta = \frac{3}{2}$ then $tan\theta$ = _____

A. $\frac{\sqrt{13}}{2}$
B. $\frac{\sqrt{5}}{2}$
C. $\frac{9}{4}$
D. 2

42 $2\pi^c$ = _____

A. 180°
B. 270°
C. 360°
D. 540°

43 tan315° = _____

A. -1
B. $\frac{1}{2}$
C. $\frac{\sqrt{3}}{2}$
D. 0

44 X and Y are mutually perpendicular if angle between them is_____

A. 0
B. $\frac{\pi}{2}$
C. π
D. 2 π

45 If $\bar{x}$ =(1,2,-3) , $\bar{y}$ = (2,-1,4) then $\bar{x}$**x** $\bar{y}$=

A. (-5,-10,-5)
B. (-5,10,-5)
C. (5,-10,-5)
D. None of the above.

46 $(\bar{i}-2\bar{j}+\bar{k})\cdot(4\bar{i}-4\bar{j}+7\bar{k}) =$ _____

A. -19
B. 19
C. -5
D. 5

47 If the angle between two vectors $\bar{x}$ and $\bar{y}$ is θ then $\sin\theta$=_____

A. $|\bar{x}\cdot\bar{y}|$
B. $|\bar{x}\times\bar{y}|$
C. $\frac{|\bar{x}\times\bar{y}|}{|\bar{x}||\bar{y}|}$
D. $\frac{\bar{x}\cdot\bar{y}}{|\bar{x}||\bar{y}|}$

48 If $\bar{a}$ is unit vector then $|\bar{a}|$=_____

A. 1
B. 0
C. -1
D. 2

49 If $(2,-3,5)\cdot(m,-6,-8)=0$ then m = _____

A. 11
B. -11
C. 22
D. -22

50 _____ is not a unit vector

A. (1,0,0)
B. (0,1,0)
C. (0,0,1)
D. $(0,\frac{1}{2},\frac{1}{2})$

51 Angle between vector x=(1,-1,0) and y =(1,0,1) is _____

A. $\frac{\pi}{3}$
B. $\frac{\pi}{2}$
C. π
D. None of the above

52 $|(1,0,1)+(1,1,1)|$=_____

A. 9
B. 8
C. $\sqrt{9}$
D. $\sqrt{8}$

53 $\bar{a}=2\bar{i}-\bar{j}+\bar{k}$ and $\bar{b}=\bar{i}+\bar{j}+\bar{k}$ then $\bar{a}.\bar{b}$=_____

A. -2
B. 2
C. 1
D. 0

54 $\bar{x}=(2,-3,1)$ then $|\bar{x}|$=_____

A. 14
B. 41
C. $\sqrt{14}$
D. $\sqrt{41}$

55 If $\bar{a}$ and $\bar{b}$ are unit vector and $\bar{a}.\bar{b}=0$ then $|\bar{a}+\bar{b}|$=_____

A. 2
B. 1
C. $\sqrt{2}$
D. 0

56 If $\bar{F}$ denotes the force applied to a particle and $\bar{d}$ denotes the displacement of the particle in the direction of $\bar{F}$ then work done W = _____

A. F × d
B. d × F
C. F.d
D. none of the above

57 If $\bar{x}.\bar{y}=0$ then $\bar{x}$ and $\bar{y}$ are _____vectors

A. Parallel
B. Perpendicular
C. Unit
D. Parallel Unit

58 Area of circle made from 4π cm. Long wire is _____ cm^2

A. 61 π
B. 4 π
C. 16 π
D. 2 π

59 The total surface area of sphere is _____

A. πr^2
B. $2\pi r^2$
C. $3\pi r^2$
D. $4\pi r^2$

60 Volume of cylinder = _____ Volume of cone

A. 3
B. 9
C. 6
D. $\frac{1}{3}$

61 If the area of base of cube is 16 cm^2 then the volume of cube is _____ cm^3

A. 64
B. 16
C. 8
D. 32

62 The formula for the volume of a hemisphere is _____

A. $4\pi r^3$
B. $2\pi r^2$
C. $4\pi r^2$
D. $\frac{2}{3}\pi r^3$

63 If radius of a circle is 7 cm. Then area of circle is _____ sq. Cm

A. 154
B. 153
C. 156
D. 150

64 Area of rectangle with length 25 cm. And width 8 cm. is _____ sq.cm

A. 2000
B. 2
C. 20
D. 200

65 The area of square is 625 sq. cm. then perimeter of square = _____

A. 10 cm
B. 20 cm
C. 50 cm
D. 100 cm

66 If the circumference of circle is 88 cm then the area of circle is _____ cm^2.

A. 661
B. 616
C. 166
D. 161

67 Volume of cone with radius *r* and height *h* is _____

A. $\frac{1}{3}\pi r^2 h$
B. $r^2 h$
C. $2\,\pi r h$
D. $2\pi r^2 h$

68 If $\log_x 25 = 2$ then x = ___

A. 5
B. 625
C. $\frac{1}{5}$
D. $\frac{25}{2}$

69 Log 1. Log 2. Log 3. Log 4 = _____

A. 1
B. 0
C. 10
D. Log 24

70 Log ($\sin^2 x + \cos^2 x$) = _____

A. 0
B. 1
C. -1
D. None of these

71 log a 1 = ___ __

A. 1
B. a
C. 0
D. -1

72 Log_{10} 0.01 = _____

A. 2
B. -2
C. 100
D. 0.01

73 Log 15x = log6+log5 then x=....

A. 6
B. 15
C. 5
D. 2

74 $\text{Log } x^2 - \log x$ = _____

A. X
B. 2
C. 1
D. Log x

75 If A is a square matrix then $A+A^T$ is……matrix.

A. Symmetric
B. Skew – Symmetric
C. Diagonal
D. Column

76 If A_{4x1} and B_{1x4} then order of matrix AB is.....

A. 4×1
B. 1×4
C. 4×4
D. 1×1

77 For matrix A if A^{-1} exist then $A.A^{-1}$ = ...

A. A
B. I
C. A^{-1}
D. Adj A

78 If A3x2 and B2x4 then number of elements of A.B is……

A. 2
B. 6
C. 8
D. 12

79 $\frac{4\pi}{9}$radian=.....degree.

A. 80
B. 20
C. 40
D. 180

80 $Cos15^0.Sin75^0 + Cos75^0.Sin15^0$ =.....

A. 1
B. 2
C. 3
D. -1

81 $Cosec^{-1}x + sec^{-1}x$ = ...

A. 0
B. 1
C. π
D. $\frac{\pi}{2}$

82 $Cos^2 A - Sin^2 A$ = ...

A. Sin A
B. Sin 2A
C. Cos 2A
D. 1

83 Sin(-x) = ...

A. Sin x
B. –Sin x
C. Sin $\left(\frac{1}{x}\right)$
D. None of these

84 tan 225° = ___

A. 0
B. 1
C. -1
D. $\sqrt{3}$

85 Principal period of Cos (2x+5) =.....

A. π
B. 2π
C. 3π
D. $\frac{\pi}{2}$

86 Principal period of Tan (2x+3) =.....

A. π
B. 2π
C. 3π
D. $\frac{\pi}{2}$

87 If a = i+4j+k then $|\bar{a}|$ =.....

A. $\sqrt{3}$
B. $\sqrt{2}$
C. $3\sqrt{2}$
D. 18

88 If vectors a and b are perpendicular to each other then.....

A. $a \times b = 0$
B. a.b = 0
C. a.b = 1
D. a+b=0

89 Dot product $\bar{a}.\bar{b}$ of vectors $\bar{a}$ = (1,0,1) and $\bar{b}$ =(0,1,0) is.....

A. 0
B. 1
C. 2
D. 3

90 For the vectors $\bar{x}$ = 3i+2j+2k and $\bar{y}$ = 2i+j-k dot product $\bar{x}.\bar{y}$ = ...

A. -6
B. 6
C. 10
D. -10

91 Force F=5i is acted on a body whose displacement vector is j+k then the work done is.....

A. 1
B. 2
C. -1
D. 0

92 A force F = 4i+2j+k acts on a particle and the particle moves from the point A to B. If displacement $\vec{AB}=(2,2,1)$ then the work done by the force F is .....

A. 13
B. 12
C. -13
D. 25

93 .....is a vector quantity.

A. Frequency
B. Moment of Force
C. Temperature
D. Work

94 Rhombus is the shape whose sides are .....

A. Equal in Measure
B. Unequal in Measure
C. Not parallel to each other
D. Perpendicular to each other

95 If perimeter of an equilateral triangle ΔABC is 15 cm. Then AB=.....

A. 45
B. 225
C. 5
D. 7.5

96 In Δ ABC m∠B = 90^0 and AB =6, BC=8 then area of ΔABC is.....

A. 24
B. 48
C. 30
D. 72

97 In Δ ABC AB =3, BC=4 and AC=5 then area of ΔABC is.....

A. 60
B. 30
C. 12
D. 6

98 The area of the circle with radius is 7 =____ cm^2

A. 14
B. 154
C. 49
D. 164

99 Curved surface area of the cylinder with radius *cm* 1 and height *cm* 7 is =____ cm^2

A. 14
B. 22
C. 44
D. 154

100 If perimeter of the square is *cm* 12 then the area of the square is =____ cm^2

A. 3
B. 9
C. 12
D. 24