

# I.P. College Campus-2 Bulandshahr

Department of Computer Science

Detailed Internal Solved Question Paper-2023

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Mathematics (BCA - 101)

## SECTION- A

1. The value of a determinant does not change when rows and columns are..... .

Ans. interchanged

2. If all the elements of any row of a determinant are zero the value of the determinant is ..... .

Ans. equal to zero.

3. In the matrix, the horizontal lines are called ..... and vertical lines are called ..... of the matrix.

Ans. Row, Column

4. A Matrix in which the number of rows is equal to the number of columns is called.....

Ans. Square matrix

5. A matrix such that ..... is called idempotent matrix.

Ans. Multiplied by itself

6. The Eigenvalues of a Hermitian matrix are..... .

Ans. Always real.

7. Differentiation of  $\log(1+x)$  = .....

Ans.  $1/(1+x)$

8. Integration of  $\cos x + \sin x$  = .....

Ans.  $\int \sin x \cos x \, dx = (-1/4) \cos 2x + C$

9. If all the powers of y in the given equation of curve is even, then there is symmetry about ..... .

Ans. around the y-axis.

10. The points at which a function  $f(x)$  has either local maximum values or local minimum values are called .....

Ans. local extremum

11. If A and B are two unitary matrices then AB is unitary matrix. T/F

Ans. True

12. If A is orthogonal Matrix then  $A'$  is also orthogonal. T/F

Ans. True

13. The inverse of every square matrix, if it exists, it is unique. T/F

Ans. True

14. Normal form of matrix is called square matrix. T/F

Ans. True

15. Limit of constant function is equal to zero. T/F

Ans. Ab bhai always zero nhi hoti toh agar always zero question aaye toh False hai verna True hai

16. Differentiation of constant function is equal to zero. T/F

Ans. True

17. All the conditions of Rolle's theorem and mean value theorem are same. T/F

Ans. False (Kuch Conditions Same Hoti hai jaise ki – Both theorems state that the slope of the tangent is the same as the slope of the secant at some point. )

18. For a strictly increasing function, the derivative of  $f(x)$  need not be strictly positive.  
T/F

Ans. False (the derivative of  $f(x)$  should be greater than zero for all values of  $x$ .)

19. A vector of length units is called Orthonormal vector. T/F

Ans. True

20. Beta function also called Eulerian integral of the first kind. T/F

Ans. True

21. Differentiation of  $\log \tan (x/2)$  is :-  
a)  $\sin x$  b)  $\cos x$  c)  $\operatorname{cosec} x$  d)  $\cot x$

Ans. C

22. Integration of  $\log x$  is :-  
a)  $x \log x + c$  b)  $1/x$  c)  $x \log x - x + c$  d)  $x \tan x + c$

Ans. C

23. Two numbers whose sum is 6 and the sum of whose cubes is minimum;-  
a) 2,4 b) 1,5 c) 3,3 d) 8,-2

Ans. Doubt hai bhai Pr vse answer D hai jaha tak pta kra hai

24. Limit of  $f(x) = [x]$  at  $x=1$  is  
a) 1 b) 2 c) does not exist d) 4

Ans. B

25. If  $3x+y+2z=3$ ,  $2x-3y-z=-3$ ,  $x+2y+z=4$  then find the value of  $x, y$  and  $z$ :-  
a)  $x=y=z=1$  b)  $x=y=2, z=1$  c)  $x=1, y=2, z=1$  d)  $x=1, y=2, z=-1$

Ans. D

26. Integration of  $\cot x / \log \sin x$  is :-  
a)  $\log \sin x + c$  b)  $\log \log \cos x + c$  c)  $\log \log \cot x + c$  d)  $\log \log \sin x + c$

Ans. D

27. limit of  $\log x / \cot x$  at  $x=0$  is :-  
a) 1 b) 2 c) -1 d) 0

Ans. D

28. If all powers of  $x$  in the given equation of curve is even ,then there is symmetry about :-  
a)  $x$  axis b)  $y$  axis c) both  $x$  axis and  $y$  axis d) Opposite quadrants

Ans. B

29. Condition for skew symmetric matrix is :-  
a)  $A' = A$  b)  $A' = -A$  c)  $A = 0$  d)  $A = -1$

Ans. B

30. Value of  $d/dx a =$   
a)  $a$  b)  $\log a$  c) 0 d)  $-a$

Ans. C