

17U124

(Pages: 2)

Name:

Reg. No.....

FIRST SEMESTER B.C.A. DEGREE EXAMINATION, NOVEMBER 2017

(CUCBCSS-UG)

CC17U BCA1 C01- MATHEMATICAL FOUNDATIONS OF COMPUTER APPLICATIONS

(Mathematics –Complementary Course)

(2017 – Admissions Regular)

Time: Three Hours

Maximum: 80 Marks

I. Answer *all* questions. Each question carries 1 mark.

1. The characteristic equation of a matrix A is given by.....
2. A matrix which is both symmetric as well as skew symmetric is known asmatrix.
3. $\det(A) = \dots\dots\dots$
4. If B is a matrix of order 2×3 , then B haselements.
5. In Gauss Jordan method the coefficient matrix is transformed in tomatrix
6. If \vec{a} and \vec{b} are two vectors, then $\vec{a} \cdot \vec{b}$ is
7. $(A^{-1})^{-1} = \dots\dots\dots$
8. $\int dx = \dots\dots\dots$
9. Two vectors \vec{a} and \vec{b} are if they have the same magnitude and direction
10. Find the ant derivative of $\cos 2x$.

(10 × 1 = 10 Marks)

II. Answer *all* questions. Each question carries 2 marks.

11. Integrate the function $\sin x$
12. Compute the magnitude of the vector $\vec{a} = 3\hat{i} + 4\hat{j}$
13. Define scalar matrix. Give one example.
14. Differentiate $e^x \sin x$ with respect to x.
15. If a matrix has 18 elements, what are the possible orders it can have?

(5 × 2 = 10 Marks)

III. Answer any *five* questions. Each question carries 4 marks.

16. Find the sum of the vectors $\vec{a} = -2\hat{i} + 3\hat{j}$ and $\vec{b} = 3\hat{i} + 4\hat{j}$ & $\vec{a} \cdot \vec{b}$
17. Explain product rule with suitable example.
18. Evaluate the integral $\int \sin x dx$
19. Differentiate x^x with respect to x.
20. Explain dot product and cross product of two vectors. Give examples for each.

21. Find the derivative of $\tan x$ using the method of first principle.
22. Define characteristic equation and Eigen values of a matrix.
23. If $\times A =$, then find the 2×2 matrix A.

(5 × 4 = 20 Marks)

IV. Answer any *five* questions. Each question carries 8 marks.

24. If $y = 5\cos x - 3\sin x$, Prove that $-y = 0$.
25. Express the matrix $B =$ as the sum of a symmetric and a skew symmetric matrix.
26. Differentiate Gauss elimination and Gauss Jordan methods.
27. Let $A =$. Verify $(A^T)^{-1} = (A^{-1})^T$.
28. Find the angle between the vectors $-2 +$ and $3 - 2 +$.
29. If $A =$, $B =$ $C =$
 Verify that a) $(A+B) C = AC+BC$
 b) $A (BC) = (AB) C$
30. Evaluate $)^2 dx$.
31. Find the Eigen values of the matrix

(5 × 8 = 40 Marks)
