

CUET Mathematics Test

Chapter: Algebra - Determinants

General Instructions

1. Total Questions: **20**
2. Duration: **60 Minutes**
3. All questions are compulsory.
4. Each question carries **5 marks**.
5. For each correct answer: **+5 marks**.
6. For each incorrect answer: **-1 mark**.
7. No negative marking for unanswered questions.
8. Use of calculator or electronic devices is strictly prohibited.
9. Choose the most appropriate answer from the given options.

www.udgamwelfarefoundation.org

1. If A is a square matrix of order 3 and $|A| = 5$, then the value of $|adj(A)|$ is:
 (A) 5
 (B) 25
 (C) 125
 (D) 625
2. If the area of a triangle with vertices $(2, -6)$, $(5, 4)$ and $(k, 4)$ is 35 square units, then the value of k is:
 (A) 12
 (B) -2
 (C) 12 or -2
 (D) 8 or -2
3. If $A = \begin{bmatrix} 2 & \lambda & -3 \\ 0 & 2 & 5 \\ 1 & 1 & 3 \end{bmatrix}$ is a non-singular matrix, then λ cannot be:
 (A) $7/5$
 (B) $-8/5$
 (C) $9/5$
 (D) $11/5$
4. Let A be a 3×3 matrix such that $|A| = 2$. Then the value of $|adj(adj(A))|$ is:
 (A) 2^2
 (B) 2^4
 (C) 2^8
 (D) 2^9
5. If A is an invertible matrix of order 2, then $det(A^{-1})$ is equal to:
 (A) $det(A)$
 (B) $1/det(A)$
 (C) 1
 (D) 0
6. If x, y, z are all different and $\begin{vmatrix} x & x^2 & 1+x^3 \\ y & y^2 & 1+y^3 \\ z & z^2 & 1+z^3 \end{vmatrix} = 0$, then the value of xyz is:
 (A) 0
 (B) 1
 (C) -1
 (D) 2
7. The cofactor of the element a_{21} in the determinant $\begin{vmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{vmatrix}$ is:
 (A) 6
 (B) -6
 (C) 3
 (D) -3
8. If the system of equations $x + ky + 3z = 0$, $3x + ky - 2z = 0$, $2x + 3y - 4z = 0$ has a non-trivial solution, then k is:
 (A) $31/10$
 (B) $33/10$
 (C) $33/2$
 (D) $31/2$

9. For what value of x is the matrix $A = \begin{bmatrix} 1-x & 2 \\ 3 & 4-x \end{bmatrix}$ singular?

- (A) 1, 4
- (B) -1, 2
- (C) 5, -2
- (D) 2, 5

10. If $A = \begin{bmatrix} a & 0 & 0 \\ 0 & a & 0 \\ 0 & 0 & a \end{bmatrix}$, then the value of $|\text{adj}A|$ is:

- (A) a^3
- (B) a^6
- (C) a^9
- (D) a^{27}

11. If A is a square matrix of order 3 and $|A| = k$, then $|2A|$ is:

- (A) $2k$
- (B) $4k$
- (C) $8k$
- (D) $16k$

12. If $A = \begin{bmatrix} \cos \alpha & -\sin \alpha \\ \sin \alpha & \cos \alpha \end{bmatrix}$, then $A \cdot \text{adj}A$ is:

- (A) I
- (B) O
- (C) A
- (D) $-I$

13. The area of the triangle whose vertices are $(a, b+c)$, $(b, c+a)$ and $(c, a+b)$ is:

- (A) abc
- (B) $a+b+c$
- (C) 0
- (D) $a^2 + b^2 + c^2$

14. If A is a square matrix such that $A^2 = I$, then A^{-1} is equal to:

- (A) $2A$
- (B) O
- (C) A
- (D) I

15. The value of the determinant $\begin{vmatrix} 1 & a & b+c \\ 1 & b & c+a \\ 1 & c & a+b \end{vmatrix}$ is:

- (A) 0
- (B) $a+b+c$
- (C) $(a-b)(b-c)(c-a)$
- (D) 1

16. If A is a 3×3 matrix and A_{ij} is the cofactor of a_{ij} , then the value of $a_{11}A_{21} + a_{12}A_{22} + a_{13}A_{23}$ is:

- (A) $|A|$
- (B) 0
- (C) 1
- (D) $-|A|$

17. If A is a skew-symmetric matrix of order 3, then $|A|$ is:
(A) 1
(B) -1
(C) 0
(D) Any real number
18. Given $2x - y + z = 1$, $x + 2y - z = 2$, $x - y + 2z = 1$. The value of x using Cramer's rule is:
(A) $2/3$
(B) $1/2$
(C) 1
(D) 0
19. If $A = \begin{bmatrix} 2 & 3 \\ 1 & 4 \end{bmatrix}$, then the sum of the eigenvalues (trace) obtained from $|A - \lambda I| = 0$ is:
(A) 5
(B) 6
(C) 7
(D) 8
20. If A and B are non-singular matrices of the same order, then $\text{adj}(AB)$ is:
(A) $\text{adj}(A) \cdot \text{adj}(B)$
(B) $\text{adj}(B) \cdot \text{adj}(A)$
(C) $\text{adj}(A) + \text{adj}(B)$
(D) AB

www.udgamwelfarefoundation.com

**For Best Mathematics E-Books, Visit:
www.mathstudy.in**

www.udgamwelfarefoundation.com

MASTER MATH FASTER & SMARTER!

Your Ultimate Digital Math Companion for Every Exam & Every Dream

✓ CBSE • ICSE • ISC • JEE • SAT • CAT • CTET • CUET & More!

Why Choose MathStudy.in?



Latest Pattern E-Books



Complete Chapter PDFs

Instant Access,
Anytime



Competitive Edge Gunkes



Case Study Based Learning

Unbelievably
Affordable!

For Students:

Special Features

- ◆ ****Board-Specific**** – CBSE, ICSE, ISC, State Boards
- ◆ ****Exam-Focused**** – JEE, SAT, CAT, CTET, CUET, NTSE
- ◆ ****Grade-Wise**** – Class 6 to 12
- ◆ ****Bilingual Options**** – English & Hindi Medium Support
- ◆ ****Printable & Shareable**** – Use offline, anytime

How to Order:

Visit : <https://www.mathstudy.in>

Browse by Exam, Class, or Topic

Add to Cart & Checkout

Contact & Support:

✉ Email: admin@mathstudy.in

💬 WhatsApp Support Available : +91-+91 92118 65759



💡 Why Wait? Empower your learning journey, save time, and achieve your dreams!

🌐 Explore & Start Learning Today:

<https://www.mathstudy.in> – Premium eBooks for success

<https://www.udgamwelfarefoundation.com> – Free PDFs, practice tests, & guida

MathStudy.in – Empowering Learners, Enabling Educators, Encouraging Excellence.
Digital Learning | Affordable Excellence | Trusted by Thousands