# Unofficial CUET Mathematics Question Paper 2024

| Questions |
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| If A and B are symmetric matrices of the same order, then AB - BA is a : |
| \|A\| is a square matrix of order 4 and IA\| = 4, then \|2A\| will be: |
| If $[A]_{3\times2}\,[B]_{x\times y} = [C]_{3\times1}$, then: |
| If a function $f(x) = x^2 + bx + 1$ is increasing in the interval [1,2], then the least value of b is: |
| Two dice are thrown simultaneously. If X denotes the number of fours, then the expectation of X will be: |
| For the function f(x) = 2x3 - 9x2 + 12x - 5, x ∈ [0,3], match List-I with List-II:<br><br>**List-I** (A) Absolute maximum value (B) Absolute minimum value (C) Point of maxima (D) Point of minima<br><br>**List-II** (I) 3 (II) 0 (III) -5 (IV) 4<br><br>Choose the correct answer from the options given below: |
| An objective function Z = ax + by is maximum at points (8, 2) and (4, 6). If a ≥ 0 and b ≥ 0 and ab = 25, then the maximum value of the function is equal to: |
| The area of the region bounded by the lines x + 2y = 12, x = 2, x = 6 and x-axis is: |
| A die is rolled thrice. What is the probability of getting a number greater than 4 in the first and the second theve of dice and a number less than 4 in the third throw? |

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| The comer points of the feasible region determined by $x + y \leq 8$, $2x+y \geq 8$, $x \geq 0$, $y \geq 0$ are A(0, 8), (4, 0) and C(8, 0). If the objective function $Z = ax + by$ base its maximum value on the line sept AB, then the relation between a and b is: |
| If $t = e^{2x}$ and $y = \log_e t^2$, then $d^2y/dx^2$ is : |
| $\int (\pi/(x^{n+1}) - x)\, dx = ?$ |
| $\int_0^1 (a - bx^2)\, dx / (a + bx^2)^2 = ?$ |
| The second order derivative of which of the following functions is $5^x$? |
| The degree of the differential equation $(1 - (dy/dx)^2)^{3/2} = k\, d^2y/dx^2$ |
| Let R be the relation over the set A of all straight lines in a plane such that $l_1 R l_2 \leftrightarrow l_1$ is parallel to $l_2$. Then R is |
| The probability of not getting 53 Tuesdays in a leap year is: |
| The angle between two lines whose direction ratios are proportional <1, 1, -2> and <(√3 - 1), (-√3 - 1), -4> is: |
| If $(a - b) \cdot (a + b) = 27$ and $\lvert a \rvert = 2 \lvert b \rvert$, then $\lvert b \rvert$ is: |
| If $\tan^{-1}( 2/(3^{-x} + 1) ) = \cot^{-1} ( 3/(3^x + 1) )$ then which one of the following is true? |
| If A, B and C are three singular matrices given by A = [ (1 4), (3 2a)], B = [(3b 5), (a 2)] and C = [(a + b + c c + 1), (a + c c)], then the value of abc is: |
| The value of integral $_{\log e^{\wedge}2}\int^{\log e^{\wedge}3}$ [ (e2x - 1) / (e2x + 1)] dx is: |

If a, b and c are three vectors such that a + b + c = 0, where a and b are unit vectors and | c | = 2, then the angle between the vectors b and c is:

Let [x] denote the greatest integer function. Then match List-I with List-II:

**List-I** (A) | x - 1 | + | x - 2 | (B) x - | x | (C) x - { x } (D) x | x |

**List-II** (I) is differentiable everywhere except at x = 0 (II) is continuous everywhere (III) is not differentiable at x 1 (IV) is differentiable at x = 1

Choose the correct answer from the options given below:

The rate of change (in $cm^2/s$) of the total surface area of a hemisphere with respect to radius r at r = $(1.331)^{1/3}$ cm is

The area of the region bounded by the lines $x/7\sqrt{3}a + y/b = 4$, x = 0 and y = 0 is:

If A is a square matrix and I is an identity matrix such that $A^2 = A$. then $A (I - 2A)^3 + 2A^3$ is equal to

Match List-I with List-II:

**List-I** (A) Integrating factor of $xdy - (y + 2x^2) dx = 0$ (B) Integrating factor of $(2x^2 - 3y ) dx = xdy$ (C) Integrating factor of $(2y + 3x^2) dx + xdy = 0$ (D) Integrating factor of $2xdy + (3x + 2y) dx=0$

**List-II** (I) 1/x (II) x (III) $x^2$ (IV) $x^3$

Choose the correct answer from the options given below:

If the function f: N→ N is defined as f(n) = { (n - 1 if is in even), (n + 1 if n is odd), then (A) f is injective (B) f is into, C) f is surjective (D) f is invertible

Choose the correct answer from the options given below:

$\int_0^{\pi/2}$ [ (1 - cotx) / (cosecx + cosx) ] dx = ?