



Sri Chaitanya
Educational Institutions



Sri Chaitanya IIT Academy., India.

✦ A.P ✦ T.S ✦ KARNATAKA ✦ TAMILNADU ✦ MAHARASTRA ✦ DELHI ✦ RANCHI

A right Choice for the Real Aspirant

ICON Central Office - Madhapur - Hyderabad

SEC: Sr.S60_Elite, Target & LIIT-BTs

Time: **09.00Am to 12.00Pm**

JEE-MAIN

GTM-08/03

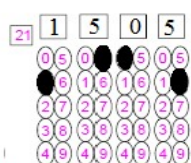
Date: **22-12-2024**

Max. Marks: **300**

IMPORTANT INSTRUCTION:

1. Immediately fill in the Admission number on this page of the Test Booklet with **Blue/Black Ball Point Pen** only.
2. The candidates should not write their Admission Number anywhere (except in the specified space) on the Test Booklet/ Answer Sheet.
3. The test is of **3 hours** duration.
4. The Test Booklet consists of **75 Questions**. The maximum marks are **300**.
5. There are **three** parts in the question paper 1,2,3 consisting of **Mathematics, Physics and Chemistry** having **25 Questions** in each subject and subject having **two sections**.
(I) **Section –I** contains **20 Multiple Choice Questions** with only one correct option.
Marking scheme: +4 for correct answer, **0** if not attempt and **-1** in all other cases.
(II) **Section-II** contains **05 Numerical Value Type Questions**.
■ The Answer should be within **0 to 9999**. If the Answer is in **Decimal** then round off to the **Nearest Integer** value (Example i.e. If answer is above **10** and less than **10.5** round off is **10** and If answer is from **10.5** and less than **11** round off is **11**).
To cancel any attempted question bubble on the question number box.
For example: To cancel attempted Question 21. Bubble on 21 as shown below

For More Material Join: @JEEAdvanced_2025



Question Answered for Marking

Question Cancelled for Marking

Marking scheme: +4 for correct answer, 0 if not attempt and -1 in all other cases.

6. Use Blue / Black Point Pen only for writing particulars / marking responses on the Answer Sheet. Use of pencil is strictly prohibited.
7. No candidate is allowed to carry any textual material, printed or written, bits of papers, mobile phone any electron device etc, except the Identity Card inside the examination hall.
8. Rough work is to be done on the space provided for this purpose in the Test Booklet only.
9. On completion of the test, the candidate must hand over the Answer Sheet to the invigilator on duty in the Hall. However, the candidate are allowed to take away this Test Booklet with them.
10. Do not fold of make any stray marks on the Answer Sheet

Name of the Candidate (in Capital): _____

Admission Number:

--	--	--	--	--	--	--	--	--

Candidate's Signature: _____

Invigilator's Signature: _____

22-12-2024_Sr.S60_Elite, Target & LIIT-BTs_Jee-Main-GTM-08/03_Test Syllabus

MATHEMATICS : TOTAL SYLLABUS

PHYSICS : TOTAL SYLLABUS

CHEMISTRY : TOTAL SYLLABUS

Sec: Sr.S60_Elite, Target & LIIT-BTs

Page 2

Sri Chaitanya
Educational InstitutionsTHE PERFECT HAT-TRICK WITH ALL-INDIA RANK 1
IN JEE MAIN 2023 JEE ADVANCED 2023 AND NEET 2023JEE MAIN
2023SINGARAJU
VEERAT KOUNDINYA
AIR NO. 300 (2023)
SRI CHAITANYA
6th-12th Class300
300
RANKRANK
1JEE Advanced
2023VAILALA
CHIVILAS REDDY
AIR NO. 341 (2023)
SRI CHAITANYA
6th-12th Class341
360
RANKRANK
1NEET
2023BORA VARUN
CHAKRAVARTHI
AIR NO. 720 (2023)
SRI CHAITANYA
6th-12th Class720
720
RANKRANK
1

For More Material Join: @JEEAdvanced_2025

**MATHEMATICS****Max Marks: 100****SECTION-I (SINGLE CORRECT ANSWER TYPE)**

This section contains **20 Multiple Choice Questions**. Each question has 4 options (1), (2), (3) and (4) for its answer, out of which **ONLY ONE** option can be correct.

Marking scheme: +4 for correct answer, 0 if not attempted and -1 in all other cases.

- Let $\vec{a} = (3 - 4\cos\theta)\hat{i} - (4\sin\theta)\hat{j}$, $\vec{b} = (4 - 5\sin\theta)\hat{i} - (5\cos\theta)\hat{j}$, for $\theta \in \left(0, \frac{\pi}{2}\right)$. Then the least value of $|\vec{a}| + |\vec{b}|$ is
 1) $5\sqrt{2}$ 2) 5 3) $\sqrt{34}$ 4) $\sqrt{41}$
- The perpendicular distance of point (2, 0, -3) from line which passes through the point (0, 2, -4) and perpendicular to the lines $\vec{r} = \begin{pmatrix} -3\hat{i} + 2\hat{k} \end{pmatrix} + \lambda \begin{pmatrix} 2\hat{i} + 3\hat{j} + 5\hat{k} \end{pmatrix}$
 $\vec{r} = \begin{pmatrix} \hat{i} - 2\hat{j} + \hat{k} \end{pmatrix} + \mu \begin{pmatrix} -\hat{i} + 3\hat{j} + 2\hat{k} \end{pmatrix}$, where $\lambda, \mu \in R$ is
 1) $\frac{\sqrt{219}}{3}$ 2) $\frac{\sqrt{78}}{3}$ 3) $\frac{\sqrt{52}}{3}$ 4) $\frac{\sqrt{126}}{3}$
- Two dice A and B are rolled. Let the numbers obtained on A and B be α, β respectively. If the variance of random variable $\alpha - \beta$ is $\frac{k_1}{k_2}$, Where k_1 and k_2 are co-prime then $k_1 - k_2 =$
 1) 21 2) 29 3) 13 4) 19
- Let $P\left(\frac{2\sqrt{3}}{\sqrt{7}}, \frac{6}{\sqrt{7}}\right)$, Q, R and S be four points on ellipse $9x^2 + 4y^2 = 36$. Let PQ & RS be mutually perpendicular chords and pass through the centre of ellipse then the value of $\left[\frac{50}{PQ^2} + \frac{50}{RS^2}\right] =$ _____ where [.] denotes GIF
 1) 4 2) 5 3) 6 4) 7



THE PERFECT HAT-TRICK WITH ALL-INDIA RANK 1
IN JEE MAIN 2023 JEE ADVANCED 2023 AND NEET 2023

JEE MAIN
2023SINGARAJU
VEERAT KOUNDINYA
AIR NO. 300 (2023)
SRI CHAITANYA
6th-12th Class**300**
300
RANK**RANK**
1**JEE Advanced**
2023VAILALA
CHIVILAS REDDY
AIR NO. 341 (2023)
SRI CHAITANYA
6th-12th Class**341**
360
RANK**RANK**
1**NEET**
2023BORA VARUN
CHAKRAVARTHI
AIR NO. 720 (2023)
SRI CHAITANYA
6th-12th Class**720**
720
RANK**RANK**
1



5. $\int \frac{x(x \tan^{-1} x + (\ln x)(\ln(\ln x))) + \tan^{-1} x}{(x^3 + x) \ln x} = f(x) + c$ where 'c' is integration constant & $f(e)=0$

Then $\left[\lim_{x \rightarrow 1^+} \frac{f(x)}{\tan\left(\frac{\pi x}{2}\right)} + \frac{11}{10} \right] = \text{_____}$, where $[.]$ denotes GIF

1) 2

2) 1

3) 0

4) -1

6. Let $y = f(x)$ be a differentiable function satisfying $\int_2^x f(t) dt + 2 = \frac{x^2}{2} + \int_x^2 t^2 f(t) dt$ then

$\int_{-\frac{\pi}{4}}^{\frac{\pi}{4}} \frac{f(x) + x^9 - x^3 + x + 1}{\cos^2 x} dx = \text{_____}$

1) 2

2) 3

3) 4

4) 0

7. Let 'q' be the maximum integral value of p in $[0, 10]$ for which the roots of the equation $x^2 + px + \frac{5p}{4} = 0$ are rational then the area of region $\{(x, y) : 0 \leq y \leq (x - q)^2, 0 \leq x \leq q\}$ is (in square units)

1) 243

2) 25

3) $\frac{125}{3}$

4) 164

8. Let n be the number of ways in which 5 boys and 5 girls can stand in a queue in such a way that all the girls stand consecutively in the queue. Let m be the number of ways in which 5 boys and 5 girls can stand in a queue in such a way that exactly four girls stand consecutively in the queue. Then the value of $\frac{m}{n}$ is

1) $\frac{7}{5}$ 2) $\frac{5}{2}$ 3) $\frac{1}{24}$

4) 5

9. Coefficient of x^{99} in $x^{100} + 2x^{99}(1+x) + 3(1+x)^2 x^{98} + \dots + 101(1+x)^{100}$ is _____

1) $101C_{99} - 101C_{98}$ 2) $100(101C_{99}) - 101C_{98}$ 3) $-101C_{98} + 101(101C_{99})$ 4) $101(101C_{98}) - 101C_{99}$

Sec: Sr.S60_Elite, Target & LIIT-BTs

Page 4

Sri Chaitanya
Educational InstitutionsInfinity
LearnTHE PERFECT HAT-TRICK WITH ALL-INDIA RANK 1
IN JEE MAIN 2023 JEE ADVANCED 2023 AND NEET 2023JEE MAIN
2023SINGARAJU
VERKAT KOUNDINYA
AIR NO. 30012023
Sri Chaitanya
6th-12th Class300
300
RANKRANK
1JEE Advanced
2023VAMILALA
CHIVILAS REDDY
AIR NO. 35010000
Sri Chaitanya
6th-12th Class341
360
RANKRANK
1NEET
2023BORA VARUN
CHAKRAVARTHI
AIR NO. 12001074
Sri Chaitanya
6th-12th Class720
720
RANKRANK
1

For More Material Join: @JEEAdvanced_2025



10. If the domain of the function $f(x) = \frac{\sqrt{x^2 - 16}}{x^2 - 4} + \log_{10}(x^2 + 3x - 10)$ is $(-\infty, p) \cup [q, \infty)$ then $p^2 + q =$ _____
 1) 21 2) 29 3) 17 4) 34
11. Let $p = \tan\left(\frac{5\pi}{9} \cos\left(2 \sin^{-1} \frac{1}{\sqrt{5}}\right)\right)$, $q = \sin^{-1}\left(\sin \frac{2\pi}{3}\right) + \cos^{-1}\left(\cos\left(\frac{7\pi}{6}\right)\right)$ then the quadratic equation whose roots are $p, \sec q$ is (Here inverse trigonometric functions take principal values)
 1) $2\sqrt{3}x^2 - 6x + \sqrt{3} = 0$ 2) $\sqrt{3}x^2 - 4x + 2\sqrt{3} = 0$
 3) $\sqrt{3}x^2 - x - 2\sqrt{3} = 0$ 4) $x^2 - 4\sqrt{3}x + 4 = 0$
12. $A = \begin{bmatrix} 1 & -2 \\ 0 & 1 \end{bmatrix}$, $B = \begin{bmatrix} 5 & 2 \\ 2 & 1 \end{bmatrix}$ then $(ABA^T)^5 (AB^T A^T)^{10} = X$ then trace of matrix X is _____
 1) 4 2) 3 3) 8 4) 2
13. Let A be a 3×3 matrix of non – negative real numbers such that $A \begin{bmatrix} 2 \\ 2 \\ 2 \end{bmatrix} = 4 \begin{bmatrix} 1 \\ 1 \\ 1 \end{bmatrix}$ then $(\det A)_{\max}$ is
 1) 12 2) 8 3) 16 4) 32
14. $f(x) = x^3 - x^2 f'(1) + x f''(2) - f'''(3)$, $x \in R$ then which of the following is incorrect?
 1) $f'(1) = 3$ 2) $f'(3) = 10$ 3) $f(0) = -6$ 4) $f''(2) = 6$
15. **Statement – I:** $f : R \rightarrow R$ be a function such that $|f(x)| \leq x^2, \forall x \in R$ then $f(x)$ is differentiable at $x=0$.
Statement – II: $f : R \rightarrow R$ be a function such that $|f(x)| \leq x^p, \forall x \in R$ then $f(x)$ is differentiable at $x=0$ for any whole number 'p'
 1) Both statement – I and statement II are true
 2) Both statement- I and statement II are false
 3) Statement I is true and statement II is false
 4) Statement I is false and statement II is true

**JEE MAIN
2023**SINGARAJU
VEERAT KOUNDINYA
AIR NO. 300 (2023)
Sri Chaitanya
6th-12th Class**300
300**
RANK**RANK
1****JEE Advanced
2023**JAVILALA
CHIVILAS REDDY
AIR NO. 341 (2023)
Sri Chaitanya
6th-12th Class**341
360**
RANK**RANK
1****NEET
2023**BORA VARUN
CHAKRAVARTHI
AIR NO. 720 (2023)
Sri Chaitanya
6th-12th Class**720
720**
RANK**RANK
1**



16. Let $y = f(x)$ satisfy the differential equation $\frac{dy}{dx} = 2xe^{-y}$, $\forall x \in R$. If $y'(1) = 1$ then the number of solutions of the equation $f(x) = f'(x)$ in $(0, \infty)$ is
- 1) 1 2) 2 3) 3 4) zero

17. Match the following

	Column - I		Column - II
1)	The number of points of discontinuity of $f(x) = (\operatorname{sgn}(x))(\operatorname{sgn}(-x))$ in R is	i)	0
2)	The number of points of continuity of $f(x) = \begin{cases} e^{ x } - 1, & x \text{ is rational} \\ \frac{1}{1+x^2}, & x \text{ is irrational} \end{cases}$ in R is	ii)	1
3)	The number of points of discontinuity of $g(x) = \lim_{n \rightarrow \infty} \frac{(f(x))^n - 1}{(f(x))^n + 1}$ in $(0, \infty)$ where $f(x) = (x-1)(x-2)(x-3) + 1$ is	iii)	2
4)	The number of points of discontinuity of $f(x) = \max.([x], x)$ in R is, where $[.]$ represents the GIF	iv)	3

Which of the following match is correct?

- 1) 1-iii, 2-iv, 3-i, 4-ii 2) 1-ii, 2-iii, 3-iv, 4-i
- 3) 1-iii, 2-i, 3-iv, 4-ii 4) 1-iv, 2-i, 3-ii, 4-iii
18. Let (α, β, γ) be the mirror image of $(1, -2, 3)$ in the line $\frac{x+1}{2} = \frac{y-3}{4} = \frac{z+2}{3}$ then $2\alpha + 4\beta + 3\gamma + 2 =$ _____
- 1) 5 2) 11 3) 9 4) 10
19. If $\arg\left(\frac{z-2}{z-2i}\right) = \frac{\pi}{4}$ then which of the following is correct?
- 1) $|z|_{\min} = 0$ 2) $|z|_{\min} = 2(\sqrt{2}-1)$ 3) $|z|_{\max} = 2(\sqrt{2}+1)$ 4) $|z|_{\max} = 4$

JEE MAIN
2023SINGARAJU
VEERAT KOUNDINYA
AIR NO. 300 (2023)
SRI CHAITANYA
6th-12th Class300
300
RANKRANK
1JEE Advanced
2023VAMALA
CHIVILAS REDDY
AIR NO. 341 (2023)
SRI CHAITANYA
6th-12th Class341
360
RANKRANK
1NEET
2023BORA VARUN
CHAKRAVARTHI
AIR NO. 720 (2023)
SRI CHAITANYA
6th-12th Class720
720
RANKRANK
1



20. In a $\triangle ABC$, $AB = AC$ where A is (3,1) and the equation of the base BC is $2x + y = 4$. Also, B lies on $x + 3y = 7$. Then sum of coordinates of vertex 'C' is _____

- 1) $\frac{13}{5}$ 2) $\frac{18}{5}$ 3) $\frac{16}{5}$ 4) $\frac{7}{5}$

SECTION-II (NUMERICAL VALUE TYPE)

This section contains **5 Numerical Value Type Questions**. The Answer should be within **0 to 9999**. If the Answer is in **Decimal** then round off to the **Nearest Integer** value (Example i.e. If answer is above **10** and less than **10.5** round off is **10** and If answer is from **10.5** and less than **11** round off is **11**).

Marking scheme: +4 for correct answer, 0 if not attempt and -1 in all other cases.

21. Equations of two diameters of a circle are $2x - 3y = 5$ and $3x - 4y = 7$. The line joining the points

$\left(-\frac{22}{7}, -4\right)$ and $\left(-\frac{1}{7}, 3\right)$ intersect the circle at only one point $p(\alpha, \beta)$ then $\frac{29}{6}(\beta - \alpha)$ is equal to _____

22. Let $\alpha \in \mathbb{R}$, z_1, z_2, z_3 be three distinct complex numbers such that $|z_1| = |z_2| = |z_3| = 3$ & $|(kz_1 + z_2) - (kz_2 + z_3)|_{\min} = \alpha |z_3 - z_2| |z_3 - z_1|$, $\forall k \in \mathbb{R} - \{0\}$ then $36\alpha =$ _____

23. The number of solutions of the equation $\sin^2 x + (2 + 2x - x^2) \sin x - 3(x - 1)^2 = 0$ in $\left[0, \frac{\pi}{2}\right]$ is α , and in $[-2\pi, 2\pi]$ is β then $\alpha + \beta =$ _____

24. $\lim_{n \rightarrow \infty} \frac{\sum_{k=1}^{n-1} (k-1)(nk - k^2)}{2 \sum_{r=1}^n r^3 - \sum_{s=0}^n (s^2 + (n-s)^2)} = t$ then $[43t] =$ _____ ([.] denotes GIF)

25. An online exam is attempted by 40 candidates out of which 15 are boys. The average marks obtained by boys is 10 with variance 2. The variance of marks obtained by 25 girls is also 2 and the average marks of all 40 candidates is 12.5. If μ is average marks of the 25 girls & σ^2 is variance of marks of all 40 candidates then $20\sigma^2 - 8\mu =$ _____



**JEE MAIN
2023**

SINGARAJU
VERKAT KOUNDINYA
AIR NO. 300 (10000)
SRI CHAITANYA
6th-12th Class

**300
300**
RANK



**RANK
1**

**JEE Advanced
2023**

VANILALA
CHIVILASA REDDY
AIR NO. 341 (10000)
SRI CHAITANYA
6th-12th Class

**341
360**
RANK



**RANK
1**

**NEET
2023**

BORA VARUN
CHAKRAVARTHI
AIR NO. 720 (10000)
SRI CHAITANYA
6th-12th Class

**720
720**
RANK



**RANK
1**

**PHYSICS****Max Marks: 100****SECTION-I (SINGLE CORRECT ANSWER TYPE)**

This section contains **20 Multiple Choice Questions**. Each question has 4 options (1), (2), (3) and (4) for its answer, out of which **ONLY ONE** option can be correct.

Marking scheme: +4 for correct answer, 0 if not attempted and -1 in all other cases.

26. Given below are two statements
 Statement (I): Viscosity of gases is greater than that of liquids.
 Statement (II): Surface tension of a liquid decreases due to the presence of insoluble impurities.
 In the light of the above statements, choose the most appropriate answer from the options given below:
 1) Statement I is correct but statement II is incorrect
 2) Statement I is incorrect but Statement II is correct
 3) Both Statement I and Statement II are incorrect
 4) Both Statement I and Statement II are correct
27. Given below are two statements: one is labelled as Assertion (A) and the other is labelled as Reason (R).
 Assertion (A): The angular speed of the moon in its orbit about the earth is more than the angular speed of the earth in its (orbit) about the sun.
 Reason (R): The moon takes less time to move around the earth than the time taken by the earth to move around the sun.
 In the light of the above statements, choose the most appropriate answer from the options given below:
 1) (A) is correct but (R) is not correct
 2) Both (A) and (R) are correct and (R) is the correct explanation of (A)
 3) Both (A) and (R) are correct but (R) is not the correct explanation of (A)
 4) (A) is not correct but (R) is correct
28. Given below are two statements:
 Statement (I): The limiting force of static friction depends on the area of contact and independent of materials.
 Statement (II): The limiting force of kinetic friction is independent of the area of contact and depends on materials.

Sec: Sr.S60_Elite, Target & LIIT-BTs

Page 8

**Sri Chaitanya**
Educational Institutions

THE PERFECT HAT-TRICK WITH ALL-INDIA RANK 1
IN JEE MAIN 2023 JEE ADVANCED 2023 AND NEET 2023

**JEE MAIN
2023**SINGARAJU
VERKAT KOUNDINYA
AIR NO. 300 (2023)
SRI CHAITANYA
6th-12th Class**300
300
300****RANK
1****JEE Advanced
2023**VAILALA
CHIVILAS REDDY
AIR NO. 341 (2023)
SRI CHAITANYA
6th-12th Class**341
340****RANK
1****NEET
2023**BORA VARUN
CHAKRAVARTHI
AIR NO. 720 (2023)
SRI CHAITANYA
6th-12th Class**720
720
720****RANK
1**

For More Material Join: @JEEAdvanced_2025



In the light of the above statements, choose the most appropriate answer from the options given below:

- 1) Statement I is correct but statement II is incorrect
- 2) Statement I is incorrect but Statement II is correct
- 3) Both Statement I and Statement II are incorrect
- 4) Both Statement I and Statement II are correct

29. Given below are two statements: one is labelled as Assertion (A) and the other is labelled as Reason (R).

Assertion (A): In Vernier calliper, if positive zero error exists, then while taking measurements, the reading taken will be more than the actual reading.

Reason (R): The zero error in Vernier Calliper might have happened due to manufacturing defect or due to rough handling.

In the light of the above statements, choose the correct answer from the options given below:

- 1) Both (A) and (R) are correct and (R) is the correct explanation of (A)
- 2) Both (A) and (R) are correct but (R) is not the correct explanation of (A)
- 3) (A) is true but (R) is false
- 4) (A) is false but (R) is true

30. Match List I with List II

List I		List II	
A)	$\oint \vec{B} \cdot d\vec{l} = \mu_0 i_c + \mu_0 \epsilon_0 \frac{d\phi_E}{dt}$	I.	Gauss' law for electricity
B)	$\oint \vec{E} \cdot d\vec{l} = -\frac{d\phi_B}{dt}$	II.	Gauss' law for magnetism
C)	$\oint \vec{E} \cdot d\vec{A} = \frac{Q}{\epsilon_0}$	III.	Faraday law
D)	$\oint \vec{B} \cdot d\vec{A} = 0$	IV.	Ampere-Maxwell law

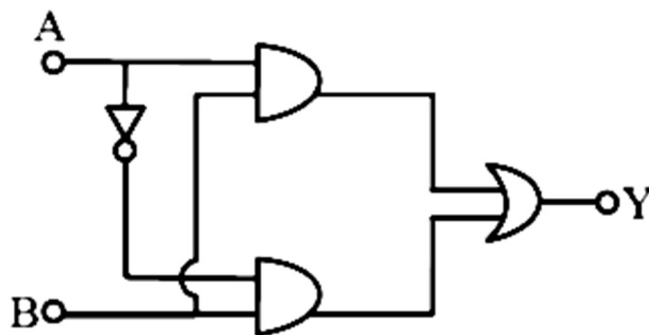
Chose the correct answer from the options given below

- 1) A-IV, B-I, C-III, D-II
- 2) A-II, B-III, C-I, D-II
- 3) A-IV, B-III, C-I, D-II
- 4) A-IV, B-II, C-III, D-IV

JEE MAIN
2023SINGARAJU
VERKAT KOUNDINYA
AIR NO. 300 (2023)
SRI CHAITANYA
6th-12th Class300
300
RANKRANK
1JEE Advanced
2023VAMILALA
CHIVILASA REDDY
AIR NO. 341 (2023)
SRI CHAITANYA
6th-12th Class341
360
RANKRANK
1NEET
2023BORA VARUN
CHAKRAVARTHI
AIR NO. 720 (2023)
SRI CHAITANYA
6th-12th Class720
720
RANKRANK
1

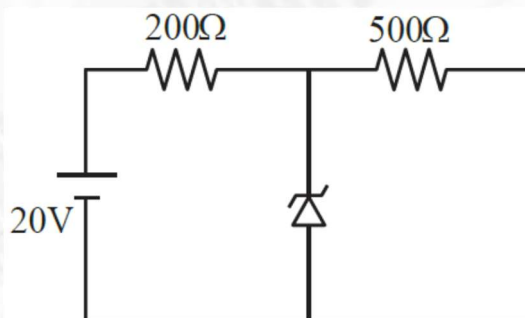


31. The output of this given circuit is:



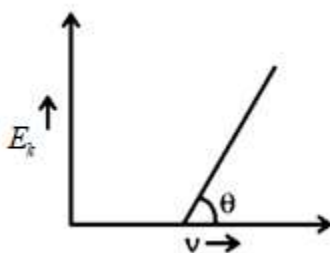
- 1) A 2) B 3) A.B 4) A+B

32. A Zener diode of breakdown voltage 10V is used as a voltage regulator as shown in the figure. The current through the Zener diode is



- 1) 50 mA 2) 0 3) 30 mA 4) 20 mA

33. For the photoelectric effect, the maximum kinetic energy (E_k) of the photoelectrons is plotted against the frequency (ν) of the incident photons as shown in figure. The slope of the graph gives


JEE MAIN
2023

 SINGARAJU
VENKAT KOUNDINYA
AIR NO. 2001012023
Sri Chaitanya
6th-12th Class

300
300
RANK

RANK
1
JEE Advanced
2023

 VAMILALA
CHIRUVILAS REDDY
AIR NO. 35010000
Sri Chaitanya
6th-12th Class

341
360
RANK

RANK
1
NEET
2023

 BORA VARUN
CHAKRAVARTHI
AIR NO. 120010174
Sri Chaitanya
6th-12th Class

720
720
RANK

RANK
1



- 1) Ratio of planck's constant to electric charge
 - 2) Work function of the metal
 - 3) Charge of electron
 - 4) Planck's constant
34. The refractive index of a prism with apex angle A is $\cot A/2$. The angle of minimum deviation is:
- 1) $\delta_m = 180^\circ - A$
 - 2) $\delta_m = 180^\circ - 3A$
 - 3) $\delta_m = 180^\circ - 4A$
 - 4) $\delta_m = 180^\circ - 2A$
35. A body of mass 2 kg begins to move under the action of a time dependent force given by $\vec{F} = (6t\hat{i} + 6t^2\hat{j})N$. The power developed by the force at the time t is given by:
- 1) $(6t^4 + 9t^5) W$
 - 2) $(3t^3 + 6t^5) W$
 - 3) $(9t^5 + 6t^3) W$
 - 4) $(9t^3 + 6t^5) W$
36. The width of one of the two slits in a Young's double slit experiment is 4 times that of the other slit. The ratio of the maximum to minimum intensity in the interference pattern is:
- 1) 9:1
 - 2) 16:1
 - 3) 1:1
 - 4) 4:1
37. In an expression $a \times 10^b$:
- 1) a is order of magnitude for $b \leq 5$
 - 2) b is order of magnitude for $a \leq 5$
 - 3) b is order of magnitude for $5 < a \leq 10$
 - 4) b is order of magnitude for $a \geq 5$
38. A liquid of density ρ comes out with a velocity 'V' from a horizontal tube of area of cross section A . The reaction force exerted by the liquid on the tube is f , then Which of the following is incorrect?
- 1) $f \propto V$
 - 2) $f \propto V^2$
 - 3) $f \propto A$
 - 4) $f \propto \rho$

**JEE MAIN
2023**SINGARAJU
VEERAT KOUNDINYA
AIR NO. 300 (2023)
SRI CHAITANYA
6th-12th Class**300
300**
RANK**1****JEE Advanced
2023**VANILALA
CHIVILAS REDDY
AIR NO. 341 (2023)
SRI CHAITANYA
6th-12th Class**341
360**
RANK**1****NEET
2023**BORA VARUN
CHAKRAVARTHI
AIR NO. 720 (2023)
SRI CHAITANYA
6th-12th Class**720
720**
RANK**1**

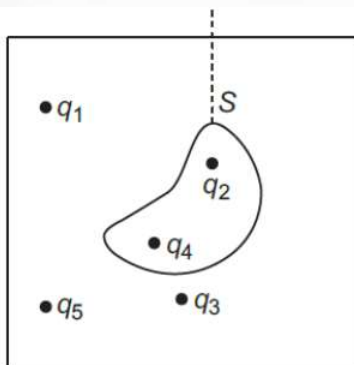


39. There are n -null points in a triangle formed by three identical point masses at the vertices of an equilateral triangle, then n is = ?
1) 1 2) 2 3) 3 4) 4
40. Identify the true statement(s) from the following
1) A hot bar placed under a running tap loses heat by convection the surface of the bar and water and not by conduction with in the water
2) Conduction is the reason behind trade wind
3) Convection involves bulk transport of different parts of fluid
4) Natural convection is responsible for cooling system of an automobile engine
41. In a longitudinal stationary wave
1) There is maximum transfer of energy across displacement nodes
2) Maximum increase of pressure occurs at displacement antinodes
3) Maximum decrease of pressure occurs at displacement antinodes
4) The pressure at displacement antinodes is same as what it would be in absence of the wave
42. A current is made of two components, a DC component of $I_1 = 3$ amp and an AC component given by $I_2 = 4\sqrt{2} \sin \omega t$ amp; then the reading of the hot-wire ammeter (rms value) is:
1) 3 amp 2) $4\sqrt{2}$ amp 3) $(3 + 4\sqrt{2})$ amp 4) 5 amp
43. Consider two cylindrical rods of identical dimensions, one of rubber and the other of steel. Both the rods are fixed rigidly at one end to the roof. A mass M is attached to each of the free ends at the centre of the rods.
1) Both the rods will elongate but there shall be no perceptible change in shape
2) The steel rod will elongate and change shape but the rubber rod will only elongate
3) The steel rod will elongate without any perceptible change in shape, but the rubber rod will elongate and the shape of the bottom edge will change to an ellipse.
4) The steel rod will elongate, without any perceptible change in shape, but the rubber rod will elongate with the shape of the bottom edge tapered to a tip at the centre





44. Five charges q_1, q_2, q_3, q_4 and q_5 are fixed at their positions as shown in figure. S is a Gaussian surface. The Gauss's law is given by $\oint E \cdot ds = \frac{q}{\epsilon_0}$ Which of the following statements is correct?



- 1) E on the LHS of the above equation will have a contribution from q_1, q_5 and q_3 , while q on the RHS will have a contribution from q_2 and q_4 only
 - 2) E on the LHS of the above equation will have a contribution from all charges while q on the RHS will have a contribution from q_2 and q_4 only
 - 3) E on the LHS of the above equation will have a contribution from all charges while q on the RHS will have a contribution from q_1, q_3 and q_5 only
 - 4) Both E on the LHS and q on the RHS will have contributions from q_2 and q_4 only.
45. The earth's surface has a negative surface charge density of 10^{-9} C/m^2 . The potential difference of 400 kV between the top of the atmosphere and the surface results (due to the low conductivity of the lower atmosphere) in a current of only 1800 A over the entire globe. If there were no mechanism of sustaining atmospheric electric field, how much time (roughly) would be required to neutralise the earth's surface (Radius of earth = $6.37 \times 10^6 \text{ m}$, assume the current is constant with time, despite the charge on the earth's surface changing)
- 1) 273 s 2) 263 s 3) 283s 4) 205 s

SECTION-II (NUMERICAL VALUE TYPE)

This section contains **5 Numerical Value Type Questions**. The Answer should be within **0 to 9999**. If the Answer is in **Decimal** then round off to the **Nearest Integer** value (Example i.e. If answer is above **10** and less than **10.5** round off is **10** and If answer is from **10.5** and less than **11** round off is **11**).

Marking scheme: +4 for correct answer, 0 if not attempt and -1 in all other cases

Sec: Sr.S60_Elite, Target & LIIT-BTs

Page 13



Sri Chaitanya
Educational Institutions



**THE PERFECT HAT-TRICK WITH ALL-INDIA RANK 1
IN JEE MAIN 2023 JEE ADVANCED 2023 AND NEET 2023**

**JEE MAIN
2023**

SINGARAJU
VERKAT KOUNDINYA
AIR NO 300 (2023)
SRI CHAITANYA
6th-12th Class
300
RANK



1

**JEE Advanced
2023**

VAHILALA
CHIVILAS REDDY
AIR NO 341 (2023)
SRI CHAITANYA
6th-12th Class
341
RANK



1

**NEET
2023**

BORA VARUN
CHAKRAVARTHI
AIR NO 720 (2023)
SRI CHAITANYA
6th-12th Class
720
RANK

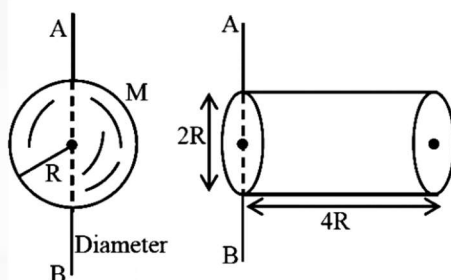


1

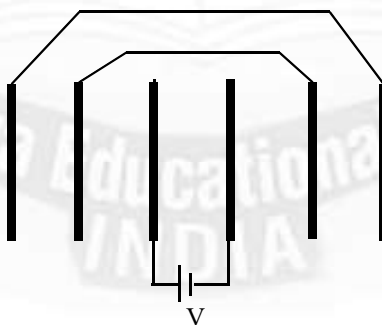
For More Material Join: @JEEAdvanced_2025



46. Ratio of radius of gyration of a hollow sphere to that of a solid cylinder of equal mass, for moment of Inertia about their diameter axis AB as shown in figure is $\sqrt{\frac{8}{x}}$. The value of x is:



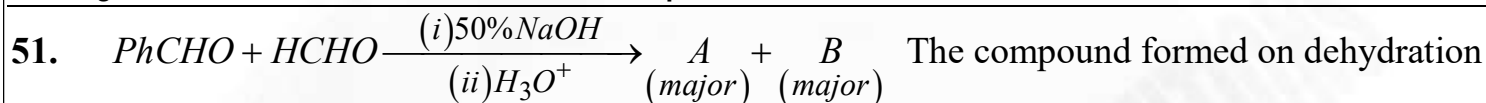
47. The disintegration energy Q for the nuclear fission of $^{235}\text{U} \rightarrow ^{140}\text{Ce} + ^{94}\text{Zr} + n$ is ____ MeV. (Given atomic masses of $^{235}\text{U}: 235.0439u$, $^{140}\text{Ce}: 139.9054u$, $^{94}\text{Zr}: 93.9063u$; $n: 1.0086u$, & value of $c^2 = 931 \text{ MeV/u}$.)
48. A current I flows along the length of a thin walled, long metallic hollow cylinder of radius R , distributed uniformly on its surface. If the pressure on the wall is $P = \left(\frac{\mu_0 I^2}{\pi^2 R^2} \right) \times \left(\frac{1}{x} \right)$. Find the value of x .
49. The modulus of potential difference V_{AB} between $A(0,0,0)\text{m}$ and $B(1,1,1)\text{m}$ in an electric field given by $\vec{E} = y\hat{i} + x\hat{j}$ _____ V
50. Six identical conducting plates of area A each are connected as shown. The separation 'd' between any two adjacent plates is same. ϵ_0 is permittivity of free space between the plates. The effective capacitance between the terminals of battery is $\frac{3k\epsilon_0 A}{2d}$. The value of 'k' is

**JEE MAIN**
2023SINGARAJU
VEERAT KOUNDINYA
AIR NO. 300 (2023)
Sri Chaitanya
6th-12th Class**300**
300
RANK**RANK**
1**JEE Advanced**
2023VAILALA
CHIVILAS REDDY
AIR NO. 341 (2023)
Sri Chaitanya
6th-12th Class**341**
360
RANK**RANK**
1**NEET**
2023BORA VARUN
CHAKRAVARTHI
AIR NO. 720 (2023)
Sri Chaitanya
6th-12th Class**720**
720
RANK**RANK**
1

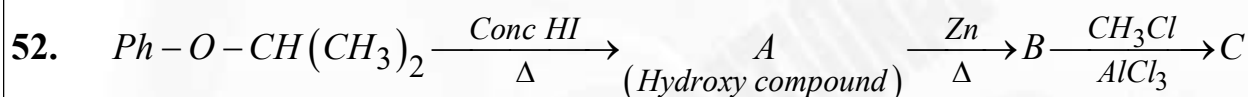
**CHEMISTRY****Max Marks: 100****SECTION-I (SINGLE CORRECT ANSWER TYPE)**

This section contains **20 Multiple Choice Questions**. Each question has 4 options (1), (2), (3) and (4) for its answer, out of which **ONLY ONE** option can be correct.

Marking scheme: +4 for correct answer, 0 if not attempted and -1 in all other cases.



- 1) $Ph - CO - OCH_3$ 2) $Ph - O - COCH_3$
 3) $Ph - CH_2 - O - CHO$ 4) $Ph - CH_2 - O - CH_3$



The incorrect option among the following is _____

- 1) $A = PhOH$ 2) $B = Benzene$ 3) $C = PhCH_3$ 4) $A = PhI$

53. The pair having similar atomic radii is _____

- 1) Mn & Re 2) Ti & Zr 3) Y & La 4) Mo & W

54. Which of the following will exhibit maximum attraction to an applied magnetic field?

- 1) N_2 2) C_2 3) NO 4) O_2

55. The correct group of halide ions which can be oxidized by oxygen in acidic medium is ____

- 1) F^- only 2) I^- only 3) Br^- & I^- only 4) Cl^- , Br^- , I^- only

56. Molar depression constant for a solvent is $8.0 \text{ K Kg mol}^{-1}$. The depression in freezing point of the solvent for 0.03 mol kg^{-1} solution of K_2SO_4 is _____?

(Assume complete dissociation of the electrolyte)

- 1) 0.72K 2) 0.24K 3) 0.36K 4) 0.12K

Sec: Sr.S60_Elite, Target & LIIT-BTs

Page 15



Sri Chaitanya
Educational Institutions



**THE PERFECT HAT-TRICK WITH ALL-INDIA RANK 1
IN JEE MAIN 2023 JEE ADVANCED 2023 AND NEET 2023**

**JEE MAIN
2023**

SINGARAJU
VEERAT KOUNDINYA
AIR NO. 300 (10000)
SRI CHAITANYA
6th-12th Class

**300
300**



**RANK
1**

**JEE Advanced
2023**

VANILALA
CHIVILAS REDDY
AIR NO. 341 (10000)
SRI CHAITANYA
6th-12th Class

**341
360**



**RANK
1**

**NEET
2023**

BORA VARUN
CHAKRAVARTHI
AIR NO. 720 (10000)
SRI CHAITANYA
6th-12th Class

**720
720**



**RANK
1**

For More Material Join: @JEEAdvanced_2025



57.

	Coloum – I (Name of the test)		Coloum – II Compound/ Group that can be identified
1)	Tollen's Test	p)	Proteins and peptides
2)	Barfoed Test	q)	Aldehydes
3)	Molisch Test	r)	Monosaccharides
4)	Biuret Test	s)	Carbohydrates

The correct matching is _____

1) $1 \rightarrow p, 2 \rightarrow q, 3 \rightarrow r, 4 \rightarrow s$

2) $1 \rightarrow q, 2 \rightarrow p, 3 \rightarrow r, 4 \rightarrow s$

3) $1 \rightarrow q, 2 \rightarrow r, 3 \rightarrow s, 4 \rightarrow p$

4) $1 \rightarrow q, 2 \rightarrow r, 3 \rightarrow p, 4 \rightarrow s$

58. The number of unpaired electrons present in the complex species $[Ni(NH_3)_6]^{2+}$ _____

1) 0

2) 1

3) 2

4) 3

59. **Statement – I:** All elements of group 15 form hydrides of type EH_3 where $E = N, P, As, Sb$ or Bi

Statement – II: All elements of group 15 form halides of type EX_3 where $E = N, P, As, Sb$ or Bi

Statement – III: Incase of halides of nitrogen only NF_3 is known to be stable

Statement – IV: The oxides of type E_2O_3 of arsenic and antimony are amphoteric and those of bismuth are predominantly basic

Select the correct combination

1) I, II, III only

2) I, II, III, IV

3) I, III, IV only

4) I, IV only

60. **Statement – I:** Mischmetall contains 5% lanthanide & 95% Fe

Statement – II: Electronic configuration Ce is $[Xe] 4f^2 6s^2$

Statement – III: Eu^{2+} is a strong reducing agent

Statement – IV: Ce^{4+} is a strong oxidizing agent

Correct statements are

1) I, II only

2) I, II, III only

3) I, II, III, IV

4) III, IV only

Sec: Sr.S60_Elite, Target & LIIT-BTs

Page 16



Sri Chaitanya
Educational Institutions



**THE PERFECT HAT-TRICK WITH ALL-INDIA RANK 1
IN JEE MAIN 2023 JEE ADVANCED 2023 AND NEET 2023**

**JEE MAIN
2023**

SINGARAJU
VERKAT KOUNDINYA
AIR NO. 300 (2023)
SRI CHAITANYA
6th-12th Class
300
RANK



1

**JEE Advanced
2023**

JAVILALA
CHIVILAS REDDY
AIR NO. 341 (2023)
SRI CHAITANYA
6th-12th Class
341
RANK



1

**NEET
2023**

BORA VARUN
CHAKRAVARTHI
AIR NO. 720 (2023)
SRI CHAITANYA
6th-12th Class
720
RANK



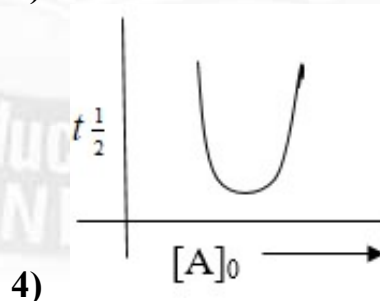
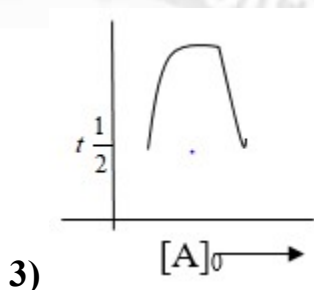
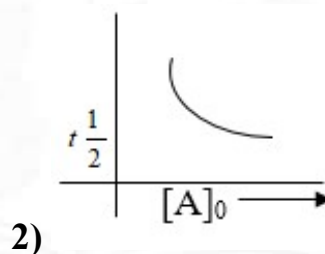
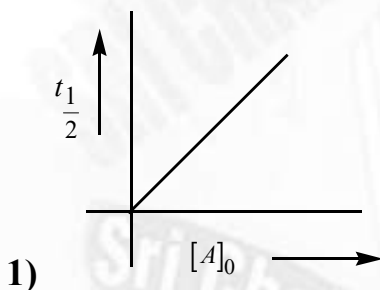
1

For More Material Join: @JEEAdvanced_2025



61. **Assertion:** CH_3OH and CH_3CH_2OH can be distinguished by using $I_2 / NaOH$
Reason: Ethanol gives yellow precipitate in Iodoform reaction but methanol will not
 1) Both Assertion (A) and Reason (R) are the true and Reason (R) is a correct explanation of Assertion (A).
 2) Both Assertion (A) and Reason (R) are the true but Reason (R) is not a correct explanation of Assertion (A).
 3) Assertion (A) is true and Reason (R) is false.
 4) Assertion (A) is false and Reason (R) is true.
62. **Assertion:** H_2O and HCl Form solution which shows negative deviation from Raoult's law
Reason: If interactions become stronger on mixing, then solutions show negative deviation from Raoult's Law
 1) Both Assertion (A) and Reason (R) are the true and Reason (R) is a correct explanation of Assertion (A).
 2) Both Assertion (A) and Reason (R) are the true but Reason (R) is not a correct explanation of Assertion (A).
 3) Assertion (A) is true and Reason (R) is false.
 4) Assertion (A) is false and Reason (R) is true.

63. Which of the following is correct relation between half-life $\left(t_{\frac{1}{2}}\right)$ and initial concentration (A_0) for zeroth order reaction ?

**JEE MAIN
2023**SINGARAJU
VEERAT KOUNDINYA
AIR NO. 20012023
SRI CHAITANYA
6th-12th Class**300
300**
SCORE**RANK
1****JEE Advanced
2023**VANILALA
CHIVILAS REDDY
AIR NO. 20012023
SRI CHAITANYA
6th-12th Class**341
360**
SCORE**RANK
1****NEET
2023**BORA VARUN
CHAKRAVARTHI
AIR NO. 120012023
SRI CHAITANYA
6th-12th Class**720
720**
SCORE**RANK
1**



64. For multi electron system the decreasing order of energy of a given orbitals $5d, 4f, 5p, 5s$ is _____
- 1) $5d > 4f > 5p > 5s$
 - 2) $4f > 5d > 5p > 5s$
 - 3) $5s > 5d > 5p > 4f$
 - 4) $4f > 5s > 5d > 5p$
65. Number of molecules of H_2SO_4 present in 100 ml of 0.02M H_2SO_4 (assume no dissociation) solution is _____
- 1) 12.044×10^{20} molecules
 - 2) 6.022×10^{23} molecules
 - 3) 1×10^{23} molecules
 - 4) 12.044×10^{23} molecules
66. Identify disproportionation reaction
- 1) $CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$
 - 2) $CH_4 + 4Cl_2 \rightarrow CCl_4 + 4HCl$
 - 3) $2F_2 + 2OH^- \rightarrow 2F^- + OF_2 + H_2O$
 - 4) $2NO_2 + 2OH^- \rightarrow NO_2^- + NO_3^- + H_2O$
67. In order to oxidize a mixture containing one mole each of $FeC_2O_4, Fe_2(C_2O_4)_3, FeSO_4$, and $Fe_2(SO_4)_3$ in acidic medium, the total number of moles of $KMnO_4$ required is _____
- 1) 3
 - 2) 2
 - 3) 1
 - 4) 1.5
68. The wavelength of first Lyman lines of Hydrogen (H), He^+ and Li^{2+} ions are λ_1, λ_2 & λ_3 respectively. The ratio $\lambda_1 : \lambda_2 : \lambda_3$ is _____
- 1) 1 : 4 : 9
 - 2) 9 : 4 : 1
 - 3) 36 : 9 : 4
 - 4) 6 : 3 : 2
69. Molar solubility of $Ni(OH)_2$ in 0.5 M $Ca(OH)_2$ is _____
- (K_{sp} of $Ni(OH)_2 = 2 \times 10^{-15} M$)
- 1) $2 \times 10^{-13} M$
 - 2) $2 \times 10^{-14} M$
 - 3) $2 \times 10^{-15} M$
 - 4) $2 \times 10^{-16} M$

**JEE MAIN
2023**SINGARAJU
VEERAT KOUNDINYA
AIR NO. 2020120203
SRI CHAITANYA
6th-12th Class**300
300**
SCORE**RANK
1****JEE Advanced
2023**VANILALA
CHIVILAS REDDY
AIR NO. 2020100003
SRI CHAITANYA
6th-12th Class**341
360**
SCORE**RANK
1****NEET
2023**BORA VARUN
CHAKRAVARTHI
AIR NO. 1202012726
SRI CHAITANYA
6th-12th Class**720
720**
SCORE**RANK
1**



70. Which of the following molecule contains more number of nitrogen atoms

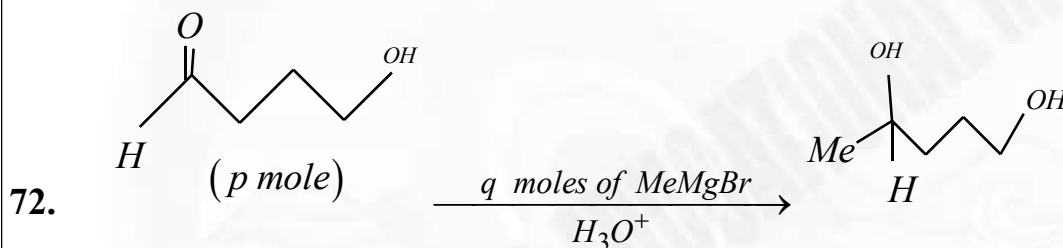
- 1) Cytosine 2) Thymine 3) Adenine 4) Uracil

SECTION-II (NUMERICAL VALUE TYPE)

This section contains **5 Numerical Value Type Questions**. The Answer should be within **0 to 9999**. If the Answer is in **Decimal** then round off to the **Nearest Integer** value (Example i.e. If answer is above **10** and less than **10.5** round off is **10** and If answer is from **10.5** and less than **11** round off is **11**).

Marking scheme: +4 for correct answer, 0 if not attempt and -1 in all other cases

71. $t_{99.9}$ is the time required for the reaction to undergo 99.9% completion and t_{50} is the time required for the reaction to undergo 50% completion. The relation between $t_{99.9}$ and t_{50} for a first order reaction is $t_{99.9} = xt_{50}$ the value of 'x' is _____ (nearest integer)

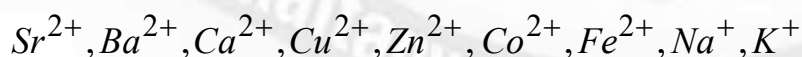


The value of $\frac{q+p}{q-p}$ on completion of above reaction is _____

73. At 27°C dinitrogen tetroxide is 50% dissociated into NO_2 through the following reaction $\text{N}_2\text{O}_4 \rightleftharpoons 2\text{NO}_2$. The standard free energy change (in J) for the reaction at this temperature and a total pressure of one atmosphere is _____

$$\left(\ln^x = 2.3 \log x, R = 8.3 \text{ JK}^{-1} \text{ mol}^{-1} \right) (\log^4 = 0.6, \log^3 = 0.48)$$

74. Number of metal ions characterized by flame test among the following is _____



75. Number of reducing sugars among the following is _____

Glucose, fructose, maltose, sucrose, lactose, cellobiose, mannose


JEE MAIN
2023
SINGARAJU
VERKAT KOUNDINYA
APPL NO 23010123003
SRI CHAITANYA
6th-12th Class

300
300
RANK

RANK
1
JEE Advanced
2023
VANILALA
CHIRUVILAS REDDY
APPL NO 23010123003
SRI CHAITANYA
6th-12th Class

341
360
RANK

RANK
1
NEET
2023
BORA VARUN
CHAKRAVARTHI
APPL NO 23010123003
SRI CHAITANYA
6th-12th Class

720
720
RANK

RANK
1



Sri Chaitanya
Educational Institutions & Techno Schools

**Infinity
Learn**

39
Years of Excellence
1986-2024
★★★★★

300
300
MARKS



1
ALL INDIA
RANK

**EMPOWERING
EVERY STUDENT
TO BECOME EXTRAORDINARY**

**PROUDLY ACHIEVED
222 RANKS IN TOP 1000**

K C BASAVA REDDY
APPL.No. 240310618179*

SEIZES 4 RANKS IN TOP 10 IN ALL-INDIA RANKS

300
300
MARKS



ALL INDIA RANK

3
RANK

THOTAMSETTY NIKILESH
APPL.No. 240310813888*

300
300
MARKS



ALL INDIA RANK

6
RANK

HIMANSHU THAKOR
APPL.No. 240310580429*

300
300
MARKS



ALL INDIA RANK

9
RANK

REDDI ANIL
APPL.No. 240310238514

**SECURED 25 RANKS IN TOP 100
ALL INDIA OPEN CATEGORY**

**Sri Chaitanya - Nagpur
DLP Student**

1
RANK



G N NIRMALKUMAR
Appl.No. 240310385062*

9
RANK



REDDI ANIL
Appl.No. 240310238514*

14
RANK



K C BASAVA REDDY
Appl.No. 240310618179*

20
RANK



THOTAMSETTY NIKILESH
Appl.No. 240310813888*

21
RANK



A V TANISH REDDY
Appl.No. 240310807613

22
RANK



HIMANSHU THAKOR
Appl.No. 240310580429*

26
RANK



VEDANT SAINI
Appl.No. 240310182830

28
RANK



P MEET VIKRAMBHAI
Appl.No. 240310197524*

34
RANK



SANVI JAIN
Appl.No. 240310150036*

40
RANK



VISHARAD SRIVASTAVA
Appl.No. 240310046262*

43
RANK



T JAYADEV REDDY
Appl.No. 240310167365

46
RANK



ISHAAN GUPTA
Appl.No. 240310100229*

49
RANK



MAVURU JASWATHI
Appl.No. 240310542275*

52
RANK



DORISALA SRINIVASA REDDY
Appl.No. 240310682440*

53
RANK



ARCHIT RAHUL PATIL
Appl.No. 240310512311*

57
RANK



KRISHNA AGRAWAL
Appl.No. 240310285850*

60
RANK



AYUSH GANGAL
Appl.No. 240310270709

68
RANK



PALAGIRI SATHISH REDDY
Appl.No. 240310905497

70
RANK



MD K GHOUSE MOHIUDDIN
Appl.No. 240310176352

76
RANK



T V S SAI NAGA BHUSHAN
Appl.No. 240310889568

92
RANK



M M PRUTHVI RAJ
Appl.No. 24031084545

93
RANK



M SAI SIVA LOCHAN
Appl.No. 240310866829*

95
RANK



RAJDEEP MISHRA
Appl.No. 240310265621*

96
RANK



MANOJ SOHAN GAJULA
Appl.No. 240310529661

98
RANK



KRISHNA NARSARIA
Appl.No. 240310028285*



Below
100
All-India Open
Category Ranks

25

Below
500
All-India Open
Category Ranks

108

Below
1000
All-India Open
Category Ranks

222

Below
100
All-India All
Category Ranks

97

Below
1000
All Category
Ranks

888

**TOTAL QUALIFIED RANKS FOR
JEE ADVANCED-2024**

21,987

**FOR OFFER ON JEE MAIN &
JEE ADVANCED COURSES**



SCAN THE QR CODE

www.srichaitanya.net | Ph: 040 660 60606

* DLP | @ Gen-EWS | @ OBC-NCL | % SC | # ST | & GEN

For More Material Join: @JEEAdvanced_2025