

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

JEE-MAIN(2nd Year Syllabus)

Date: 18-12-2024

Time: 09.00Am to 12.00Pm

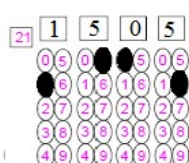
GTM-06/01

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: _____

18-12-2024_Sr.S60_Elite, Target & LIIT-BTs_2nd Year Syllabus**Jee-Main-GTM-06/01_Test Syllabus****MATHEMATICS : 2nd Year Syllabus****PHYSICS : 2nd Year Syllabus****CHEMISTRY : 2nd Year Syllabus**

**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.

1. The area of smaller region bounded by the curve $9x^2 + 4y^2 - 36x + 16y + 16 = 0$ and the line $3x + 2y = 8$ is
- 1) $\frac{3}{2}(\pi + 2)$ 2) $3(\pi - 2)$ 3) $\frac{3}{4}(\pi - 2)$ 4) $\frac{3}{2}(\pi - 2)$
2. Let $A = \{z \in \mathbb{C} : 1 \leq |z - (1 + i)| \leq 2\}$ and $B = \{z \in A : |z - (1 - i)| = 1\}$. Then B:
- 1) is an empty set
2) contains exactly two elements
3) contains exactly three elements
4) is an infinite set
3. Let $S = \left\{x \in [-6, 3] - \{-2, 2\} : \frac{|x+3|-1}{|x|-2} \geq 0\right\}$ and $T = \{x \in \mathbb{Z} : x^2 - 7|x| + 9 \leq 0\}$. Then the number of elements in $S \cap T$ is
- 1) 7 2) 5 3) 4 4) 3
4. $\int \frac{6x^{10} + 4}{x^3 \sqrt{x^{10} - 3x^4 - 1}} dx, x > 0 = \text{_____}$ (c is constant of integration)
- 1) $\frac{\sqrt{x^{10} - 3x^4 - 1}}{x^2} + c$ 2) $\frac{2\sqrt{x^{10} - 3x^4 - 1}}{x^2} + c$
3) $2\sqrt{x^{10} - 3x^4 - 1} + c$ 4) $\sqrt{x^{10} - 3x^4} + C$
5. The value of the definite integral $\int_{-2}^2 x^3 \ln(1^x + 3^x + 5^x + 15^x) dx =$
- 1) $\frac{\ln 15}{4}$ 2) $\frac{64}{5} \ln 15$ 3) $\frac{32}{5} \ln 15$ 4) $\frac{64}{5} \ln 30$



6. Let $x^2 + y^2 + Ax + By + C = 0$ be a circle passing through $(0, 6)$ and touching the parabola $y = x^2$ at $(2, 4)$. Then $A + C$ is equal to

1) 16 2) 88/5 3) 72 4) -8

7. Match the following List – I with List II (for $z = x + iy$, $x, y \in R$)

	List I		List II
P)	Area of the triangle formed by the complex numbers z , ωz , $z + \omega z$ is $16\sqrt{3}$ then $ z $ is (where ω is a non real cube root of unity)	1)	4
Q)	Area of the locus of z , if $ \operatorname{Re} z + \operatorname{Im} z = 3$	2)	8
R)	If $\left z + \frac{6}{z}\right = 5$ then the maximum of $ z $ is	3)	6
S)	Number of complex numbers 'z' which satisfy $z^2 = \bar{z}$ is (are)	4)	18

1) P – 1, Q – 4, R – 2, S – 3

2) P – 2, Q – 4, R – 3, S – 1

3) P – 2, Q – 3, R – 2, S – 1

4) P – 4, Q – 3, R – 1, S – 2

8. For $x \in R, x \neq -1$ if $(1+x)^{2016} + x(1+x)^{2015} + x^2(1+x)^{2014} + \dots + x^{2016} = \sum_{i=0}^{2016} a_i x^i$ then $a_{17} =$

1) $\frac{|2017|}{|17|2000}$

2) $\frac{|2016|}{|16|}$

3) $\frac{|2016|}{|17|1999}$

4) $\frac{|2017|}{|2000|}$

9. The co-ordinate of the focus of the parabola described parametrically by $x = 5t^2 + 2$, $y = 10t + 4$ is

1) (3, 4)

2) (7, 4)

3) (4, 2)

4) (2, 9)



10. If coefficient of $x^2y^3z^4$ in $(x+y+z)^n$ is A, (where $A \neq 0, n \in N$) then coefficient of x^4y^4z is
- 1) $2A$ 2) $\frac{nA}{2}$ 3) $\frac{A}{2}$ 4) nA
11. Statement 1: $\sum_{k=1}^{\infty} \frac{6^k}{(3^k - 2^k)(3^{k+1} - 2^{k+1})} = 2$
- Statement 2: $\sum_{k=1}^n (k^3 - (k-1)^3) = n^3$ for any natural number n
- 1) Both statement 1 and statement 2 are true
- 2) Both statement 1 and statement 2 are false
- 3) Statement 1 is true, Statement 2 is false
- 4) Statement 1 is false, Statement 2 is true
12. Let R_1 and R_2 be two relations defined on \mathbb{R} by $aR_1b \Leftrightarrow ab \geq 0$ and $aR_2b \Leftrightarrow a \geq b$. Then
- 1) R_1 is an equivalence relation but not R_2
- 2) R_2 is an equivalence relation but not R_1
- 3) Both R_1 and R_2 are equivalence relations
- 4) Neither R_1 nor R_2 is an equivalence relation
13. Let $(2, 3)$ be the focus of a parabola and $x+y=0$ and $x-y=0$ be its two tangents, then equation of its directrix will be
- 1) $2x-3y=0$ 2) $3x+4y=0$ 3) $x+y=5$ 4) $12x-5y+1=0$
14. The solution of the differential equation $(1-xy-x^5y^5)dx - x^2(x^4y^4+1)dy = 0$ given by (c is arbitrary constant)
- 1) $x = ce^{\frac{xy+\frac{1}{5}x^5y^5}{5}}$ 2) $x = ce^{\frac{xy-\frac{1}{5}x^5y^5}{5}}$ 3) $x = ce^{\frac{x^2y^2+\frac{1}{5}x^5y^5}{5}}$ 4) $x = ce^{\frac{x^2y^2-\frac{1}{5}x^5y^5}{5}}$



15. Let $I_1 = \int_0^x e^{tx} \cdot e^{-t^2} dt$ and $I_2 = \int_0^x e^{-t^2/4} dt$ where $x > 0$ then the value of $\frac{I_1}{I_2}$ is
- 1) $e^{-x^2/2}$ 2) $e^{x^2/4}$ 3) $e^{-x^2/4}$ 4) $e^{x^2/2}$
16. Let the foci of the Ellipse $\frac{x^2}{16} + \frac{y^2}{7} = 1$ and Hyperbola $\frac{x^2}{144} - \frac{y^2}{\alpha} = \frac{1}{25}$ coincide. then the length of the latus rectum of the Hyperbola is:-
- 1) $\frac{32}{9}$ 2) $\frac{27}{10}$ 3) $\frac{18}{5}$ 4) $\frac{27}{4}$
17. An ellipse $E: \frac{x^2}{a^2} + \frac{y^2}{b^2} = 1, (a < b)$ passes through the vertices of the hyperbola $H: \frac{x^2}{49} - \frac{y^2}{64} = -1$. Let the major and minor axes of the ellipse E coincide with the transverse and conjugate axes of the hyperbola H. Let the product of the eccentricities of E and H be $\frac{1}{2}$. If l is the length of the latus rectum of the ellipse E, then the value of $113l$ is equal to
- 1) 1556 2) 1552 3) 1662 4) 776
18. The mean and standard deviation of the marks of 200 candidates were found to be 40 and 15 respectively. Later, it was discovered that one of student marks 40 was wrongly read as 50. The correct mean and standard deviation, respectively are
- 1) 14.98, 39.95 2) 39.95, 14.98 3) 39.95, 224.5 4) 39.00, 14.00
19. If $\{a_i\}_{i=1}^n$ where n is an even integer is an arithmetic progression with common difference 1, and $\sum_{i=1}^n a_i = 192$, $\sum_{i=1}^{n/2} a_{2i} = 120$ then n is equal to
- 1) 48 2) 96 3) 92 4) 104



20. If the circle $C_1 = x^2 + y^2 = 16$ intersects another circle C_2 of radius 5, in such a manner that the common chord is of maximum length and has a slope equal to $3/4$ then one of the co-ordinates of the centre of C_2 are

1) $\left(\frac{9}{5}, \frac{12}{5}\right)$ 2) $\left(\frac{9}{5}, -\frac{12}{5}\right)$ 3) $\left(\frac{12}{5}, \frac{9}{5}\right)$ 4) $\left(\frac{12}{5}, -\frac{9}{5}\right)$

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. Two cards are drawn at random from a pack of 52 playing cards. If the odds against of the event that one card is heart and other is an ace are $n:1$ then $n =$
22. Let S be the region bounded by the curves $y = x^3$ and $y^2 = x$. The curve $y = 2|x|$ divides S into two regions of areas R_1 and R_2 . If $\max\{R_1, R_2\} = R_2$, then $\frac{R_2}{R_1} =$
23. If the sum of the squares of the reciprocals of the roots α and β of the equation $3x^2 + \lambda x - 1 = 0$ is 15, then $6(\alpha^3 + \beta^3)^2 =$
24. If $I = \int (x^2 + 1)((x+1)e^x)^2 dx = A(f(x))^2 + C$, where C is constant of integration and $f(-1) = \frac{2}{e}$, then $2A + f(0)$ is
25. The number of ways of arrangement of 5 letters of the word "IITJEE" is

**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. Assertion (A): A non-polar material do not have any permanent electric dipole moment, but when placed in external electric field it develops electric dipole moment.

Reason (R): when a non-polar material is placed in an electric field, the centre of the positive charge distribution of its individual atom or molecule does not coincide with the centre of the negative charge distribution.

In the light of above statements, choose the most appropriate 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 and R is not the correct explanation of A
- 3) A is correct but R is not correct.
- 4) A is not correct but R is correct

27. In a cuboid of dimensions $2L \times 2L \times L$, a tiny ball having charge q is placed at the centre of the face having area $4L^2$. The flux through a face having area $2L^2$ is

- 1) $\frac{q}{12\epsilon_0}$
- 2) $\frac{q}{3\epsilon_0}$
- 3) $\frac{q}{2\epsilon_0}$
- 4) $\frac{q}{6\epsilon_0}$

28. An insulating solid sphere of radius R has a uniform positive charge density ρ . As a result of this uniform charge distribution there is a finite value of electric potential at the centre of the sphere, at the surface of the sphere and also at a point outside the sphere. The electric potential at infinity is zero

Statement 1: Potential decreases uniformly from the centre to the surface of the sphere

Statement 2: The magnitude of electric field at a distance r ($r < R$) from the centre of the sphere is $\frac{\rho r}{3\epsilon_0}$.

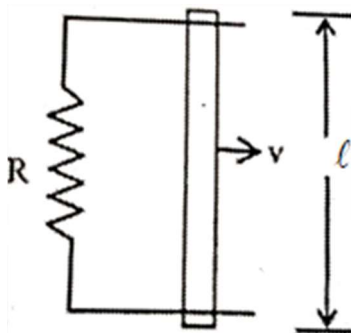
- 1) Statement 1 is true, Statement 2 is true, Statement 2 is the correct explanation of Statement 1
- 2) Statement 1 is true, Statement 2 is true, Statement 2 is not the correct explanation of statement 1
- 3) Statement 1 is true Statement 2 is false
- 4) Statement 1 is false Statement 2 is true
29. A 6 volt battery is connected to the terminals of a three metre long wire of uniform thickness and resistance of 100 ohm. The difference of potential between two points on the wire separated by a distance of 50 cm will be
- 1) 2 volt 2) 3 volt 3) 1 volt 4) 1.5 volt
30. Given below are two statements: One is labelled as Assertion (A) and the other is labelled as Reason (R).
- Assertion (A):** In a static magnetic field, the velocity of a charged particle changes only in direction.
- Reason (R):** Moving charged particle experiences magnetic force which is perpendicular to its direction of velocity
- 1) Both A and R are true and R is the correct explanation of A
- 2) Both A and R are true 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
31. A proton, a deuteron and an α particle with the same KE enter in a region of uniform magnetic field, moving at right angles to magnetic field. What is the ratio of the radii of their circular paths?
- 1) $1: \sqrt{2}:1$ 2) $1: \sqrt{2}:\sqrt{2}$ 3) $\sqrt{2}:1:1$ 4) $\sqrt{2}:\sqrt{2}:1$



32. A bar magnet of dipole moment 10^4 JT^{-1} is free to rotate in a horizontal plane. A horizontal magnetic field $4 \times 10^{-5} \text{ T}$ exists in the space. Find the work done in rotating the magnet slowly from a direction parallel to the field to a direction 60° from the field

- 1) 0.1J 2) 0.2J 3) 0.4J 4) 0.5J

33. A conducting rod of resistance r moves uniformly with a constant speed v . If the rod keeps moving uniformly, then the amount of force required is ____



- 1) $\frac{vB^2\ell^2}{R}$ 2) $\frac{2vB^2\ell^2}{(R+r)}$ 3) $\frac{vB^2\ell^2}{(R+r)}$ 4) zero

34. Given below are two statements:

Statement I: An AC circuit undergoes electrical resonance if it contains both capacitor as well as inductor.

Statement II: If a pure inductor is connected across alternating voltage source then instantaneous voltage (v), instantaneous current (i) and inductive reactance (x_L) are related

$$\text{as } i = \frac{v}{X_L}$$

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

- 1) Statement 1 is true, Statement 2 is true, Statement 2 is the correct explanation of Statement 1
 2) Statement 1 is true, Statement 2 is true, Statement 2 is not the correct explanation of statement 1
 3) Statement 1 is true Statement 2 is false
 4) Statement 1 is false Statement 2 is true

**35. Match List – I with List – II**

	List I		List II
A)	AC generator	I)	Detects the presence of current in the circuit
B)	Galvanometer	II)	Converts mechanical energy into electrical energy
C)	Transformer	III)	Works on the principle of mutual induction in AC circuits
D)	Zener Diode	IV)	Voltage regulator

Choose the correct answer from the options given below

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

36. Identify the correct statement(s) from the following descriptions of various properties of electromagnetic waves.

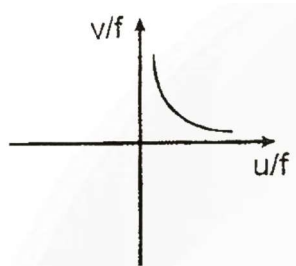
- A. In a plane electromagnetic wave electric field and magnetic field must be perpendicular to each other and direction of propagation of wave should be along electric field or magnetic field
- B. The energy in electromagnetic wave is divided equally between electric and magnetic fields
- C. Both electric field and magnetic field are parallel to each other and perpendicular to the direction of propagation of wave
- D. The electric field, magnetic field and direction of propagation of wave must be perpendicular to each other
- E. The ratio of amplitude of electric field to the amplitude of magnetic field is equal to speed of light

Choose the most appropriate answer from the options given below

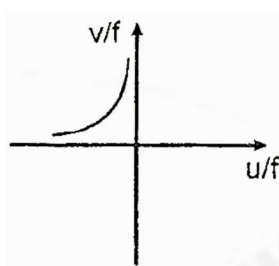
- 1) D only 2) B, D and E only
3) B, C and E only 4) A, B and E only



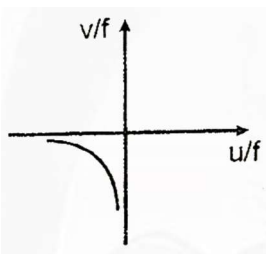
37. A virtual erect image by a diverging lens is represented by (u, v, f are object distance, image distance and focal length respectively)



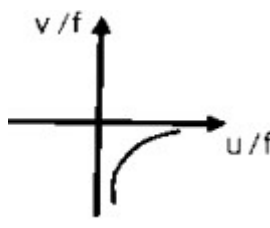
1)



2)



3)

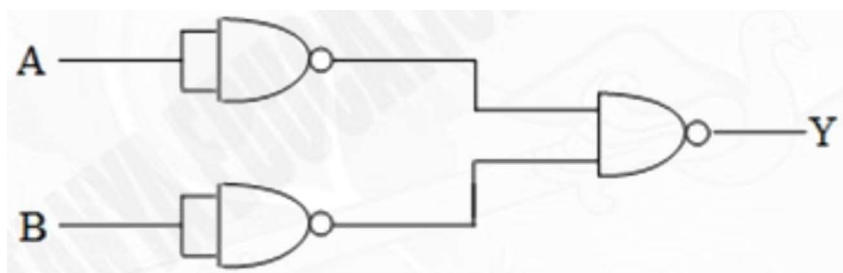


4)

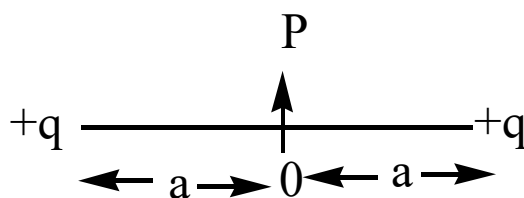
38. An air bubble in a glass slab of refractive index $\mu = 1.5$ when viewed from one side appears to be at 6cm and from opposite side at 4cm. Then the width of glass slab is
1) 10 cm 2) 15 cm 3) 18 cm 4) 20 cm
39. In a double-slit experiment, at a certain point on the screen the path difference between the two interfering waves having same intensity is $\frac{1}{4}$ th of their wavelength. The ratio of the intensity of light at that point to that at the centre of a bright fringe is
1) $\frac{1}{4}$ 2) $\frac{1}{2}$ 3) $\frac{1}{6}$ 4) $\frac{1}{8}$
40. A metal plate of area $2 \times 10^{-4} m^2$ is illuminated by a radiation of intensity $8mW/m^2$. The work function of the metal is 5eV. The energy of the incident photons is 10 eV and only 1% of it produces photo electrons. The number of emitted photo electrons per second and their maximum energy, respectively, will be [$1eV = 1.6 \times 10^{-19} J$]
1) 10^{14} and 10 eV 2) 10^{12} and 5 eV 3) 10^{11} and 5 eV 4) 10^{10} and 5 eV



41. According to Bohr model, magnetic field at centre (at the nucleus) of a hydrogen atom due to motion of electron in the n^{th} orbit is proportional to
- 1) $1/n^3$ 2) $1/n^5$ 3) n^5 4) n^3
42. A heavy nucleus having mass number 200 gets disintegrated into two small fragments of mass number 80 and 120. If binding energy per nucleon for parent nucleus is 6.5 MeV and for daughter nuclei is 7 MeV and 8 MeV respectively, then the energy released in the decay will be
- 1) 200 MeV 2) 240 MeV 3) 220 MeV 4) 180 MeV
43. Following circuit is equivalent to



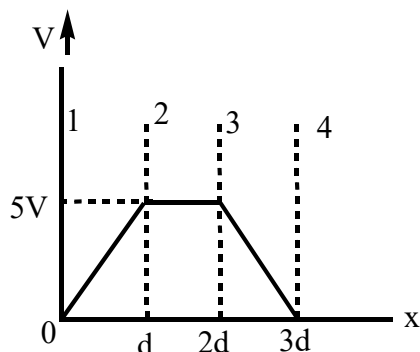
- 1) AND gate 2) OR gate 3) NOT gate 4) X-OR gate
44. A dipole P is released from rest from point O as shown in figure.



Then,

- 1) it will make SHM
2) it will move linearly along +ve y-direction
3) it will be in rotational and translational motion
4) it will be stationary

45. In the figure four identical plates 1, 2, 3 and 4 are placed at $x = 0, d, 2d$ and $3d$ respectively. Graph shows variation of potential with position of plates. Capacitance of any one capacitor is C . Then equivalent capacitance between plates 1 and 3 is



1) $C/2$

2) $3C$

3) $3C/2$

4) $2C$

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**).

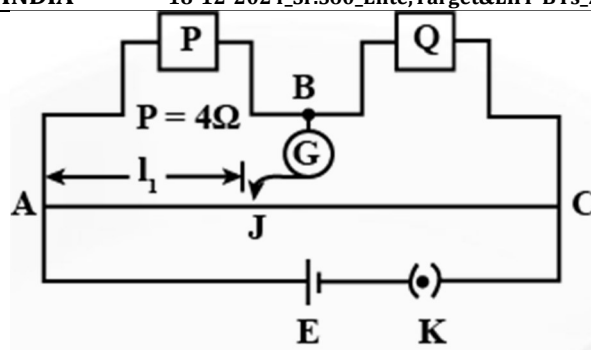
Marking scheme: +4 for correct answer, 0 if not attempt and -1 in all other cases

46. A parallel plate capacitor with plate area A and plate separation d is filled with a dielectric material of dielectric constant $K = 4$. The thickness of the dielectric material is x , where $x < d$

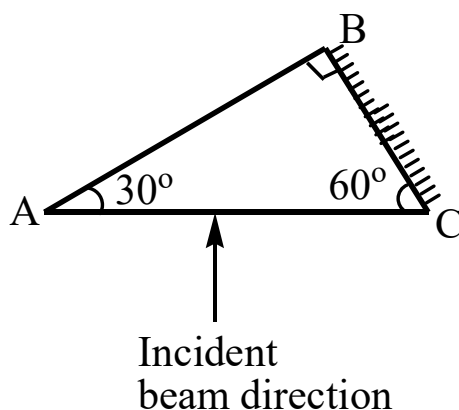


Let C_1 and C_2 be the capacitance of the system for $x = \frac{d}{4}$ and $x = \frac{d}{2}$, respectively. If $C_1 = 10\mu F$ the value of C_2 is _____ μF .

47. Resistances are connected in a meter bridge circuit as shown in the figure. The balancing length l_1 is 40 cm. Now an unknown resistance x is connected in series with Q and new balancing length is found to be 25 cm measured from the same end. Then the value of x will be _____ Ω



48. Amplitude of the electric field produced by the radiation coming from a 100W bulb at a distance of 3m is E . The amplitude of electric field produced by the radiation coming from 60 W at the same distance is $\sqrt{\frac{x}{5}}E$. Where the value of $x =$ ____
49. A narrow beam of light is incident normally on a $30^\circ - 60^\circ - 90^\circ$ prism (near vertex A) whose one side is reflecting as shown in the figure. Refractive index of material of prism is $\mu = 2.2$. The total deviation of the beam when it comes out of the prism is $n \times 36^\circ$. Find n



50. There are 16 nodes on a circle. Each node is connected with every other node by a resistance R . Equivalent resistance between any two consecutive nodes is $\frac{R}{n}$. Find n

**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.

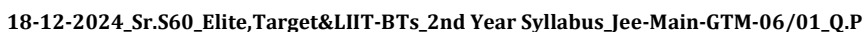
51. Incorrect statement is
- 1) In carboxylic acids, the bonds to the carboxyl carbon lie in one plane and are separated by about 120° .
 - 2) The carboxylic carbon is less electrophilic than carbonyl carbon because of the resonance in carboxylic acid.
 - 3) Aliphatic carboxylic acids upto nine carbon atoms are colorless liquids at room temperature with pleasant odours.
 - 4) Most carboxylic acids exist as dimer in the vapour phase.

52. Match List I and List II

	List I		List II
A)	Glucose + Br_2 / H_2O	P)	Addition product forms
B)	Glucose + HCN	Q)	No reaction
C)	Glucose + $NaHSO_3$	R)	White PPt forms
D)	Glucose + $conHNO_3$	S)	Gluconic Acid
		T)	Product is optically active

- 1) $A \rightarrow S; B \rightarrow Q; C \rightarrow R; D \rightarrow T$
 - 2) $A \rightarrow S, T; B \rightarrow P, T; C \rightarrow Q; D \rightarrow T$
 - 3) $A \rightarrow T; B \rightarrow P, T; C \rightarrow Q; D \rightarrow S, T$
 - 4) $A \rightarrow P, S, T; B \rightarrow P, T; C \rightarrow Q; D \rightarrow T$
53. Incorrect statements from following are?

- A) Crystal field theory failed to explain strength of ligands
 - B) Valence bond theory fails to explain colour and kinetic stability of complexes
 - C) Both $[Ni(CN)_4]^{-2}$ and $[Ni(CO)_4]$ are square planar complexes and diamagnetic
 - D) Both $[PtCl_2Br_2]^{-2}$ and $[NiCl_2Br_2]^{-2}$ show geometrical isomerism
- 1) A & B only 2) C & D Only 3) C Only 4) A, C & D

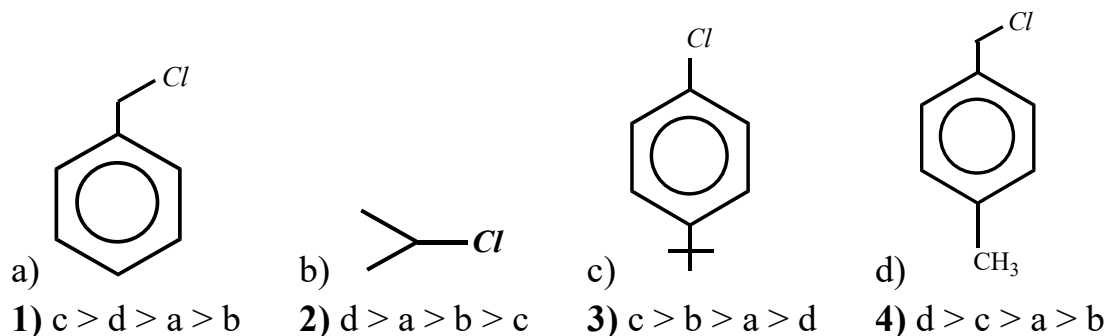


- $$\text{CH}_3\text{C}(\text{CH}_3)_2\text{C}(\text{CH}_3)\text{CHO} \xrightarrow[\text{NaCN}]{\text{HCN}} \text{A} \xrightarrow{\text{H}_3\text{O}^+} \text{B} \xrightarrow[\text{then H}_2\text{O}]{\text{LAH}} \text{C}$$

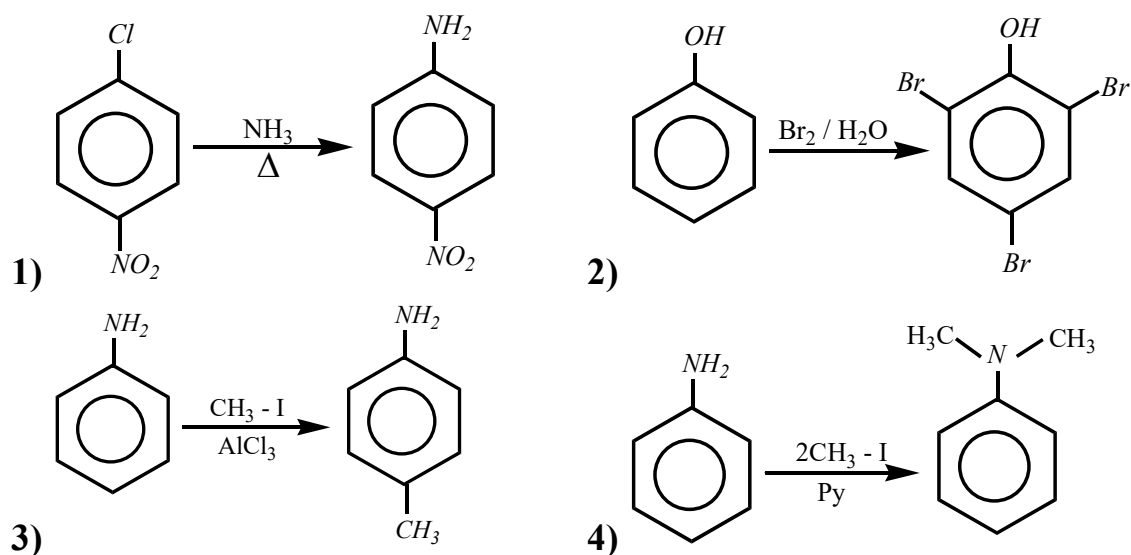
4) B & D



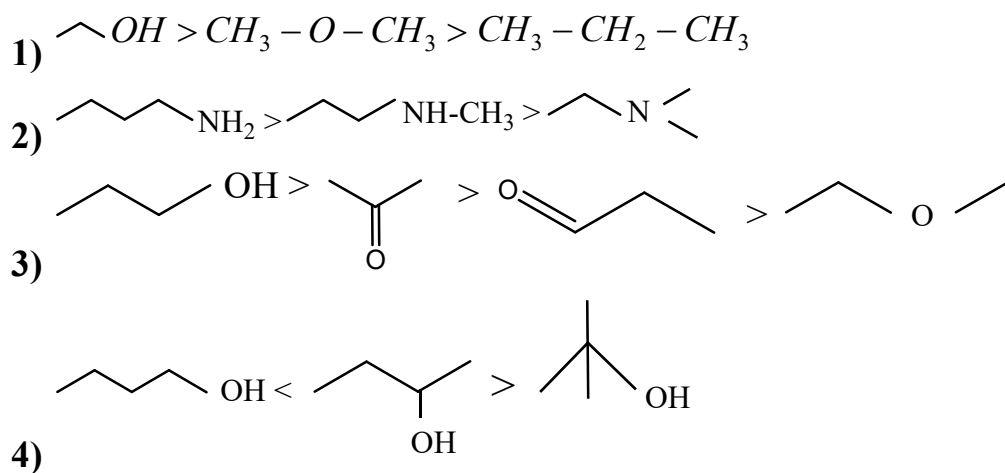
59. Decreasing order of reactivity of the following compounds for SN^1 Substitution is?



60. Incorrect reaction is?

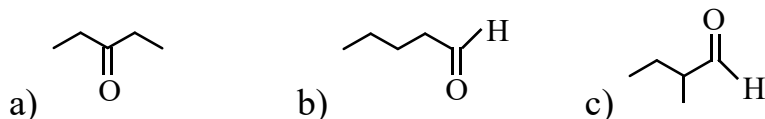


61. Incorrect boiling point order is?





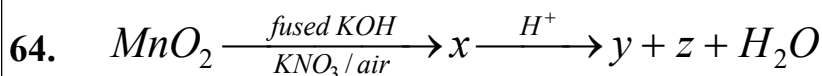
62. Correct reactivity order towards RMgCl is ?



- 1) $a > b > c$ 2) $c > b > a$ 3) $b > a > c$ 4) $b > c > a$

63. The maximum number of possible oxidation states of actinoides are shown by?

- 1) Bk and Cf 2) No and Lr 3) Ac and Th 4) Np and Pu



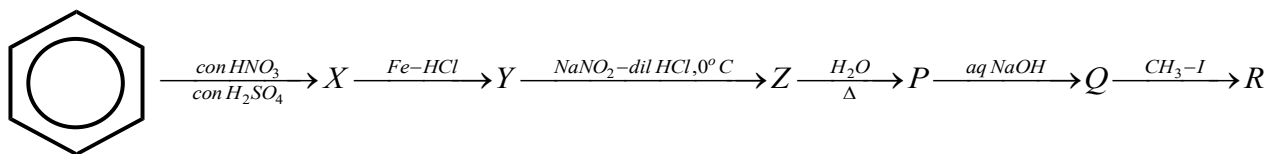
If x, y and z are Mn containing compounds and oxidation state of Mn in y is more than O.St. of Mn in Z then incorrect statements about x, y and z is/are

- i) Both x & y are coloured due to d-d transition
 ii) When y is heated at 513K then x and z are formed
 iii) y is not very soluble in H_2O

iv) Both x & y are tetrahedral

- 1) i & iii 2) i & ii 3) i only 4) ii & iv

65.



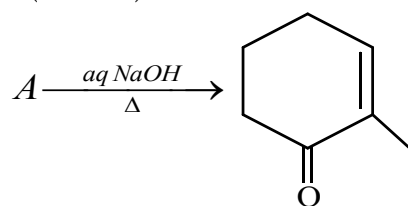
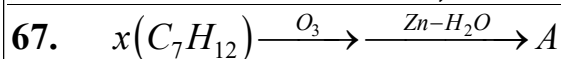
R is

- 1) Anisole 2) Phenol 3) Alcohol 4) Toludine

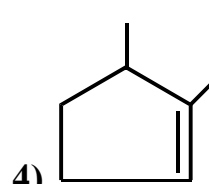
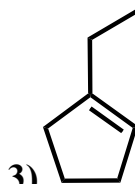
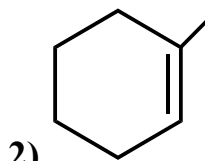
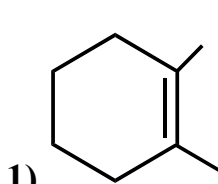
66. Incorrect combination is?

α -Amino acid	One letter symbol
A) Histidine	H
B) Phenylalanine	F
C) Lysine	K
D) Tyrosine	W

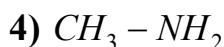
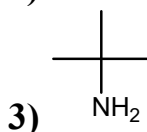
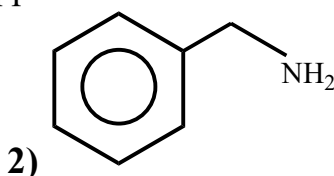
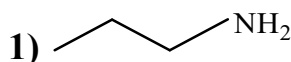
- 1) A 2) B 3) C 4) D



Then x is?



68. Gabriel phthalimide synthesis is not applicable for?



69. A sample of sea water was found to contain 9.5% w/w of $MgCl_2$ and 5.85 % w/w of NaCl (Assuming complete ionization of salts) What will be the boiling point of sample? (K_b for water = 0.52 k-Kg/mol, At. Wt of Mg = 24, Na = 23, Cl = 35.5)

1) $102.6^\circ C$

2) $103.07^\circ C$

3) $101.04^\circ C$

4) $100.52^\circ C$

70. Electrolysis of aqueous $CuSO_4$ (0.1 M) was carried out in two cells I and II. In I, the electrodes are of Cu and in II they were of Pt. As the electrolysis proceeds pH of the electrolyte solution will

1) decrease in II and remain the same in I

2) remain the same in both I and II

3) increase in both I and II

4) increase in I and decrease in II

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. How many ketones with molecular formula $C_5H_{10}O$ give racemic mixture with $LiAlH_4 / H_2O$
72. The rate constant value for the decay of radioactive isotopes X and Y, used in radio-medicine are $0.05hr^{-1}$ and $0.025hr^{-1}$ respectively. In a hospital at a time ' t_0 ' the activity of sample X was found to be twice that of Y. (Activity = no. of disintegrations / sec). The activities of the two radioisotopes will be approximately equal when the time elapsed is _____ hour (Round off to nearest integer). (use $\ln 2=0.7$)
73. Concentration of K^+ ions inside a biological cell was found to be 25 times higher than that outside. The magnitude of the potential difference between the two sides of the cell in close to _____ mV (nearest integer) ($2.303 \frac{RT}{F} = 59mV$, $\log 5=0.7$) (difference in concentration of other ions can be taken as negligible).
74. How many of the following statements are incorrect?
- I) Sea water freezes at a lower temperature than pure water
 - II) Boiling point of sea water increases as it evaporates
 - III) Sea water boils at a lower temperature than fresh water
 - IV) Density of sea water at STP is same as that of fresh water
 - V) Half life is 50% of the total time taken for the completion of a reaction.
 - VI) Collision frequency (Z), which is the number of collisions per second per unit volume, is same as the rate constant of the reaction
 - VII) A change in the activation energy of a reaction at a particular temperature will result in a proportional change in the rate and rate constant of the reaction at the same temperature.
 - VIII) All first order reactions are not unimolecular
 - IX) For a zero order reaction, slope of a plot of $t_{1/2}$ vs initial concentration will be zero.
75. In a saturated solution of $AgBr$ ($K_{sp} = 2 \times 10^{-13}$), If 10^{-7} moles of $AgNO_3$ are added to 1litre of this solution, find specific conductance of this solution in terms of $10^{-7} S - m^{-1}$ units.
- Given: $\lambda_{(Ag^+)}^o = 6 \times 10^{-3} S - m^2 / mol$
- $$\lambda_{(NO_3^-)}^o = 7 \times 10^{-3} S - m^2 / mol$$
- $$\lambda_{(Br^-)}^o = 8 \times 10^{-3} S - m^2 / mol$$



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