



Sri Chaitanya
Educational Institutions



Sri Chaitanya IIT Academy., India.

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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-17/12

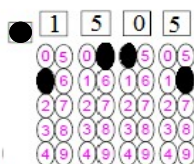
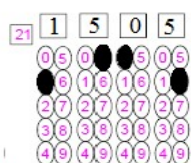
Date: 12-01-2025

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

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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:

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Candidate's Signature: _____

Invigilator's Signature: _____

12-01-2025_Sr.S60_Elite, Target & LIIT-BTs_Jee-Main-GTM-17/12_Test Syllabus

MATHEMATICS : TOTAL SYLLABUS

PHYSICS : TOTAL SYLLABUS

CHEMISTRY :TOTAL SYLLABUS

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

JEE MAIN
2023SINGARAJU
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AIR NO. 300 (2023)
SRI CHAITANYA
6th-12th Class300
300
RANKRANK
1JEE Advanced
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**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.

- If $\int \frac{dx}{\cos^3 x \sqrt{2 \sin 2x}} = (\tan x)^A + C(\tan x)^B + k$ where k is a constant of integration, then $A - B - C$ equals:
 1) $\frac{16}{5}$ 2) $\frac{21}{5}$ 3) $\frac{-9}{5}$ 4) $\frac{-11}{5}$
- The shortest distance between the lines $\frac{X-2}{2} = \frac{Y-3}{2} = \frac{Z-0}{1}$ and $\frac{X+4}{-1} = \frac{Y-7}{8} = \frac{Z-5}{4}$ lies in the interval.
 1) $[0,1)$ 2) $[1,2)$ 3) $(2,3]$ 4) $(3,4]$
- For $n \in N$ $\tan^{-1}\left(\frac{1}{3}\right) + \tan^{-1}\left(\frac{1}{4}\right) + \tan^{-1}\left(\frac{1}{5}\right) + \tan^{-1}\left(\frac{1}{n}\right) = \frac{\pi}{4}$ then $n =$
 1) 47 2) 43 3) 49 4) 51
- The sum of all values of x in $[0, 2\pi]$, for which $\sin x + \sin 2x + \sin 3x + \sin 4x = 0$, is equal to
 1) 8π 2) 11π 3) 12π 4) 9π
- The equation of the plane containing the line $2x - 5y + z = 3$, $x + y + 4z = 5$ and parallel to the plane $x + 3y + 6z = 1$, is
 1) $2x + 6y + 12z = 13$ 2) $x + 3y + 6z = -7$
 3) $x + 3y + 6z = 7$ 4) $2x + 6y + 12z = -13$
- If $f(x) = \left(a - x^n\right)^{\frac{1}{n}}$ then $f \circ f(x)$ is
 1) $a - x$ 2) x 3) x^n 4) $\frac{1}{x^n}$
- If the perpendicular bisector of line segment joining points $P(1,4)$ & $Q(K,3)$ has y-intercept equal to -4 then value of K .
 1) -2 2) -4 3) $\sqrt{14}$ 4) $\sqrt{15}$

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2023**VAILALA
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RANK**1****NEET
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8. If e_1 & e_2 be eccentricities of Ellipse $\frac{x^2}{25} + \frac{y^2}{b^2} = 1$ ($b < 5$) and hyperbola, $\frac{x^2}{16} - \frac{y^2}{b^2} = 1$ respectively satisfying $e_1 e_2 = 1$. If α & β are distance between the foci of ellipse and foci of the hyperbola respectively, then $|\alpha - \beta| =$
- 1) 2 2) 4 3) $\frac{16}{3}$ 4) $\frac{26}{5}$
9. The stationary point of $y = \frac{\log x}{x}$ ($x > 0$) is
- 1) (1,0) 2) $\left(e, \frac{1}{e}\right)$ 3) $\left(\frac{1}{e}, -e\right)$ 4) $\left(\frac{1}{e}, \frac{1}{e}\right)$
10. A circle touching the x-axis at (3,0) and making an intercept of length 8 on y-axis passes through the point.
- 1) (3,5) 2) (2,3) 3) (3,10) 4) (1,5)
11. Match the columns

Column – I		Column – II	
A)	$\lim_{x \rightarrow \infty} \left(\frac{x}{1+x}\right)^x$ equal to	p)	e^2
B)	$\lim_{x \rightarrow \infty} \left(\sin \frac{1}{x} + \cos \frac{1}{x}\right)^x$ equal to	q)	$e^{-1/2}$
C)	$\lim_{x \rightarrow 0} (\cos x)^{\cot^2 x}$ equal to	r)	e
D)	$\lim_{x \rightarrow 0} \left(\tan \left(\frac{\pi}{4} + x\right)\right)^{1/x}$ equal to	s)	e^{-1}
		t)	e^{-2}

- 1) $A \rightarrow s, B \rightarrow r, C \rightarrow q, D \rightarrow p$ 2) $A \rightarrow s, B \rightarrow r, C \rightarrow q, D \rightarrow t$
- 3) $A \rightarrow t, B \rightarrow r, C \rightarrow t, D \rightarrow p$ 4) $A \rightarrow q, B \rightarrow s, C \rightarrow t, D \rightarrow p$

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12. **Statement I:** For $f(x) = \sin x, f'(\pi) = f'(3\pi)$
Statement II: For $f(x) = \sin x, f(\pi) = f(3\pi)$
- 1) Both statements are True
 - 2) Both statement are False
 - 3) Statement I is true & Statement II is false
 - 4) Statement I is false & Statement II is true
13. The solution of $e^x \tan y dx + (1 - e^x) \sec^2 y dy = 0$ is
- 1) $\sec y = c(1 - e^x)$
 - 2) $\tan y(1 - e^x) = C$
 - 3) $\tan y = c(1 - e^x)$
 - 4) $\sec y = 1 - e^x$
14. If $5x^3 + Mx + N, M, N \in R$ is divisible by $x^2 + x + 1$, then the value of $M + N$ is
- 1) 5
 - 2) -5
 - 3) -4
 - 4) 4
15. If the coefficient of 4th term in expansion of $(a + b)^n$ is 56 then value of n.
- 1) 7
 - 2) 8
 - 3) 9
 - 4) 6
16. The mean & variance of 7 observations are 8 and 16 respectively, if five observations are 2, 4, 10, 12, 14 then absolute difference of the remaining two observations is
- 1) 1
 - 2) 2
 - 3) 3
 - 4) 4
17. If $A = \begin{bmatrix} 1 & -2 \\ 4 & 5 \end{bmatrix}$ and $f(t) = t^2 - 3t + 7$ then $f(A) + \begin{bmatrix} 3 & 6 \\ -12 & -9 \end{bmatrix} =$
- 1) $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$
 - 2) $\begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$
 - 3) $\begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$
 - 4) $\begin{bmatrix} 1 & 1 \\ 0 & 0 \end{bmatrix}$

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18. If the locus of point $(4t^2 - 1, 8t - 2)$ represent a parabola then the equation of latus rectum is
 1) $x - 5 = 0$ 2) $2x - 7 = 0$ 3) $x + 5 = 0$ 4) $x - 3 = 0$
19. Sum of all solutions of the equation $|x|^3 - 4|x|^2 + 3|x| = 0$ is
 1) 4 2) 3 3) 0 4) 1
20. Let $\{t_n\}$ be a sequence of integers in G.P in which $t_4 : t_6 = 1 : 4$ and $t_2 + t_5 = 216$ then $t_1 =$
 1) 18 2) 16 3) 14 4) 12

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. The area of region bounded by $Y = |X|$ and $Y = 2$ in sq units is _____
22. If $f(x)$ is an I.F of $\frac{dy}{dx} = \frac{x+y+1}{x+1}$ then $2f(1) =$
23. The integral $\int_0^{\frac{\pi}{2}} \frac{1}{3+2\sin x + \cos x} dx$ is equal to $\cot^{-1} K$, then value of K is
24. Let S be set of all (λ, μ) which the set of vectors $(\hat{i} - \lambda\hat{j} + \hat{k}, \hat{i} + \hat{j} + \mu\hat{k}, \hat{i} - \hat{j} + \hat{k})$ are coplanar, where $\lambda - \mu = 2$. Then $\sum_{\lambda, \mu \in S} (\lambda^2 + \mu^2) =$ _____
25. If A and B are two events such that $P(A) = 0.6$ & $P(B) = 0.8$ if greatest value that $P\left(\frac{A}{B}\right)$ can have is P, then value of $8P =$ _____

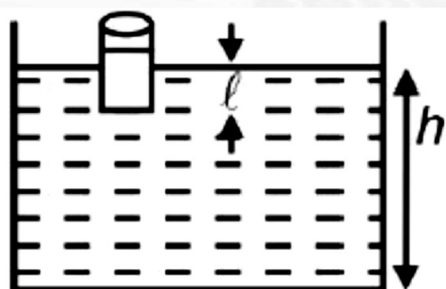


**PHYSICS****Max Marks: 100****SECTION-I(SINGLE CORRECT ANSWER TYPE)**

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. In a young's double slit experiment two slits are separated by 2 mm and the screen is placed one meter away. When a light of wavelength 1000 nm is used, the fringe separation will be
- 1) 0.25 mm 2) 0.75 mm 3) 0.5 mm 4) 1 mm
27. A wooden block with a coin placed on its top floats in water as shown after some time coin falls into water, then



- 1) Both l and h decrease 2) l increase and h decrease
- 3) l decrease and h increase 4) Both l and h increase
28. Match List – I with List – II

List – I		List – II	
A)	Magnetic Induction	p)	$MLT^{-3}K^{-1}$
B)	Pole strength	q)	$ML^{-1}T^{-1}$
C)	Coefficient of viscosity	r)	M^0LA
D)	Coefficient of thermal conductivity	s)	$MT^{-2}A^{-1}$

- 1) $A \rightarrow p, B \rightarrow s, C \rightarrow r, D \rightarrow q$ 2) $A \rightarrow p, B \rightarrow q, C \rightarrow r, D \rightarrow s$
- 3) $A \rightarrow s, B \rightarrow r, C \rightarrow q, D \rightarrow p$ 4) $A \rightarrow p, B \rightarrow r, C \rightarrow q, D \rightarrow s$

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THE PERFECT HAT-TRICK WITH ALL-INDIA RANK 1
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300
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1**JEE Advanced 2023**VANILALA
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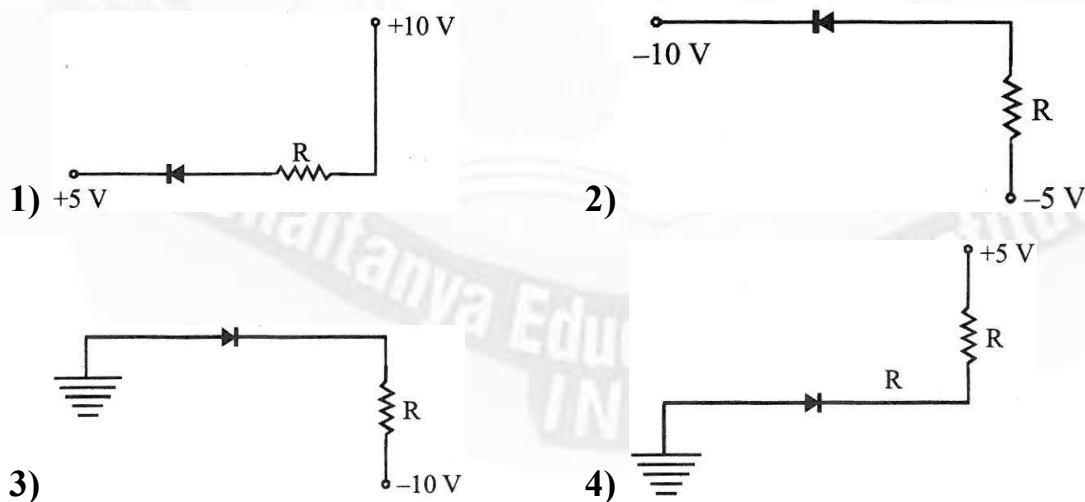
29. **Assertion:** To drink chilled juice, we use ice cubes at 0°C instead of cold water at 0°C
Reason: Ice tends to absorb heat from the juice for its melting, this makes the juice cooler
 1) Assertion is true, Reason is true and Reason is correct explanation of Assertion
 2) Assertion is true, Reason is true and Reason is not correct explanation of assertion
 3) Assertion is true and Reason is false
 4) Both Assertion and Reason are false
30. For a certain organ pipe, the resonance frequencies are in the ratio of 1: 3: 5: 7:..... respectively. If the frequency of 3rd overtone is 350 Hz and speed of sound in air is 300 ms^{-1} , length of organ pipe is
 1) 2.5 m 2) 1 m 3) 3 m 4) 1.5 m
31. One litre of water at 20°C is heated in an electric kettle whose heating element has resistance of 20Ω . The voltage in the mains is 200V, ignoring heat loss from kettle, time taken for water to evaporate fully is close to (specific heat of water = $4200\text{ J/kg}^{\circ}\text{C}$ Latent heat of water = 2260 kJ/kg)
 1) 16 min 2) 3 min 3) 12 min 4) 22 min
32. If the electric potential at any point $(x, y, z)\text{ m}$ in space given by $V = 5z^2\text{ volt}$. The electric field at the point $(1, 1, 5)\text{ m}$ will be
 1) $5Vm^{-1}$ directed along positive z – axis
 2) $5Vm^{-1}$ directed along negative z – axis
 3) $50Vm^{-1}$ directed along negative z – axis
 4) $50Vm^{-1}$ directed along positive z – axis
33. If the magnetic field of a plane electromagnetic wave is given by

$$B = 200 \times 10^{-8} \sin \left(4\pi \times 3 \times 10^{15} \left(t - \frac{x}{v} \right) \right)$$
 then the maximum electric field associated with it is (All units in S.I system) $(C = 3 \times 10^8\text{ m/s})$
 1) 6×10^2 2) 12×10^4 3) 4×10^2 4) 3×10^4



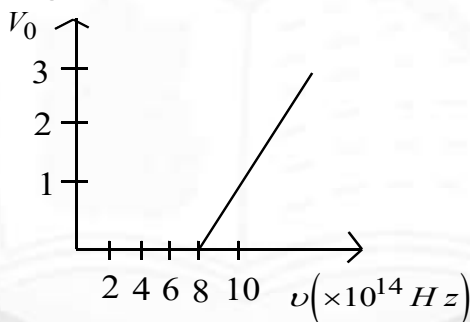


34. Two identical charged particles each having a mass 20 g and charge $4 \times 10^{-6}\text{ C}$ placed on a horizontal table with separation of L between them such that they stay in limited equilibrium. If coefficient of friction between each particle and table is 0.25 , then value of L is ($g = 10\text{ m/s}^2$)
- 1) 17 cm 2) 170 cm 3) 340 cm 4) 3.4 cm
35. A water pipe has an internal diameter of 10 cm . Water flows through it at the rate of 20 m/sec . Water jet strikes normally on a wall and falls dead. The force on the wall is.
- 1) 1413 N 2) 3143 N 3) 2413 N 4) 1000 N
36. **Assertion:** A planet is moving around the sun in an elliptical orbit. Then from aphelion point to perihelion point the speed of the planet continuously increases.
- Reason:** According to Kepler's second law, the areal velocity of the lines joining planet to sun is constant
- 1) Assertion and Reason are true and reason is correct explanation of Assertion
 2) Assertion and reason are true and reason is not correct explanation of Assertion
 3) Assertion is true Reason is false
 4) Assertion is false Reason is true
37. In the following, which one of the diodes is reverse biased?

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38. In an inelastic collision, the kinetic energy after collision.
 1) Is same as before collision
 2) Is always less than before collision
 3) Is always greater than before collision
 4) May be less or greater than before collision
39. When ${}_3\text{Li}^7$ nuclei are bombarded by protons, and the resultant nuclei are ${}_4\text{Be}^8$, the emitted particles will be
 1) Alpha particles 2) Beta particles 3) Gamma photons 4) Neutrons
40. If a ray of light takes t_1 and t_2 times in two media of absolute refractive indices μ_1 and μ_2 respectively to travel same distance, then
 1) $\mu_1 t_1 = \mu_2 t_2$ 2) $\mu_1 t_2 = \mu_2 t_1$ 3) $t_1 \sqrt{\mu_1} = t_2 \sqrt{\mu_2}$ 4) $t_1 \sqrt{\mu_2} = t_2 \sqrt{\mu_1}$
41. A ring of radius r is uniformly charged with a charge q . If the ring is rotated with an angular velocity ω , the magnetic induction at centre
 1) $\frac{\mu_0}{4\pi} \left(\frac{q\omega}{r} \right)$ 2) $\frac{\mu_0}{4\pi} \left(\frac{r}{q\omega} \right)$ 3) $\frac{\mu_0}{4\pi} \left(\frac{q}{r\omega} \right)$ 4) $\frac{\mu_0}{4\pi} \left(\frac{\omega}{qr} \right)$
42. A coil of inductance 0.4 Henry is connected to a 800 V battery. At what rate will current in the coil grow when circuit is completed?
 1) 1000 As^{-1} 2) 4000 As^{-1} 3) 2000 As^{-1} 4) 500 As^{-1}
43. The variation of stopping potential (V_0) as a function of the frequency (ν) of the incident light for a metal is shown in figure. The work function of surface is



- 1) 2.2 eV 2) 1.1 eV 3) 3.3 eV 4) 4.4 eV
44. Two bodies are projected at angles 30° and 60° to the horizontal from the ground such that the maximum heights reached by them are equal. Then
Statement – I: The ratio of their initial speeds of projection is $\sqrt{3} : 1$
Statement – II: Both take same time to reach maximum height

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- 1) Statement – I and statement – II both are true
 2) Statement – I and statement – II both are false
 3) Statement – I is true, statement – II is false
 4) Statement – I is false, statement – II is true
45. **Statement – I:** A magnetic needle kept in a non uniform magnetic field experience a force and a torque.
Statement – II: The magnetic field lines inside a bar magnet are from north-pole to south-pole of the magnet.
- 1) Statement – I and statement – II both are true
 2) Statement – I and statement – II both are false
 3) Statement – I is false, statement – II is true
 4) Statement – I is true, statement – II is false

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 ballet dancer spins about a vertical axis at 30rpm with arms out stretched. When her arms are folded the angular frequency increases to 120rpm . If original moment of inertia is I . Then change in her moment of inertia is $\frac{3I}{x}$ where $x = \underline{\hspace{2cm}}$
47. A steel wire of mass 3.16 kg is stretched to a tensile strain of 1×10^{-3} . The elastic deformation energy if density $\rho = 7.9\text{ gm/cc}$ and $Y = 2 \times 10^{11}\text{ N/m}^2$ is $x \times 10^{-2}\text{ kJ}$ where $x = \underline{\hspace{2cm}}$
48. The output of a step-down transformer is measured to be 24V when connected to a 12W light bulb. The value of the peak current is $\frac{1}{\sqrt{x}}$ where $x = \underline{\hspace{2cm}}$
49. If the rms speed of oxygen molecules at 0°C is 160 m/s , then the rms speed of hydrogen molecules at 0°C is $\underline{\hspace{2cm}}$
50. The radius of fifth orbit of the Li^{2+} is $\underline{\hspace{2cm}} \times 10^{-12}\text{ m}$
 Take: Radius of hydrogen atom $= 0.51\text{ \AA}$



**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.

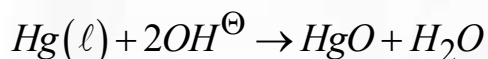
51. Which of the following is ionic in nature?

- 1) NH_3 2) C_2H_6 3) BiF_3 4) CCl_4

52. The correct order of atomic radius of elements F, Cl, Br and I is

- 1) $I > Br > Cl > F$ 2) $F > Cl > Br > I$
3) $Cl > Br > I > F$ 4) $I > Cl > Br > F$

53. Statement-I: In the following reaction mercury is oxidised



Statement-II: Oxidation state of Mercury in HgO is +1

- 1) Statement I is true but Statement II is false.
2) Both Statement I and Statement II are false
3) Statement I is false but Statement II is true.
4) Both Statement I and Statement II are true.

54. Match List – I with List – II

List – I		List – II	
A)	H_2O	I)	Linear
B)	$BeCl_2$	II)	See-saw
C)	SF_4	III)	Trigonal planar
D)	BF_3	IV)	Bent

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

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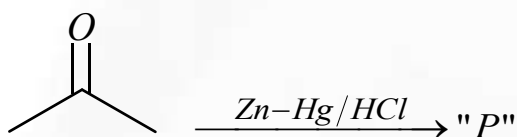


55. Assertion (A): Boron has three valance electrons

Reason (R): BCl_3 follows rule of octet.

- 1) Both A and R are true but R is not the explanation for A
- 2) Both A and R are true and R is the explanation for A
- 3) A is false and R is true.
- 4) A is true and 'R' is false.

56. The product "P" in the following conversion is



- 1)
- 2)
- 3)
- 4)

57. NaCl on heating with conc H_2SO_4 and MnO_2 gives $Cl_{2(g)}$. What is oxidation state of chlorine in $Cl_{2(g)}$

- 1) +4
- 2) +7
- 3) 0
- 4) +2

58. Which one of the following carbonyl compounds is obtained by addition of water to acetylene in the presence of $HgSO_4$ and H_2SO_4 ?

- 1) $CH_3-CH_2-CH_2-\overset{\overset{O}{\parallel}}{C}-H$
- 2) $CH_3-CH_2-\overset{\overset{O}{\parallel}}{C}-H$
- 3) Both 1 and 2
- 4) $CH_3-\overset{\overset{O}{\parallel}}{C}-H$

59. The solubility of $Zn(OH)_2$ in water at $25^\circ C$ is $5 \times 10^{-5} \text{ mol l}^{-1}$. Its K_{sp} at same temperature is

- 1) $5 \times 10^{-13} \text{ mol}^3 \cdot \text{dm}^{-3}$
- 2) $5 \times 10^{-15} \text{ mol}^3 \cdot \text{dm}^{-3}$
- 3) $5 \times 10^{-9} \text{ mol}^3 \cdot \text{dm}^{-3}$
- 4) $5 \times 10^{-12} \text{ mol}^3 \cdot \text{dm}^{-3}$

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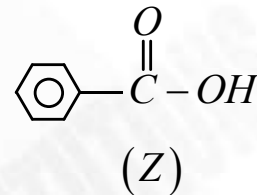
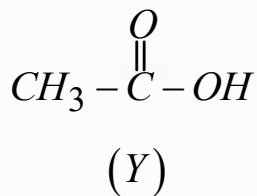
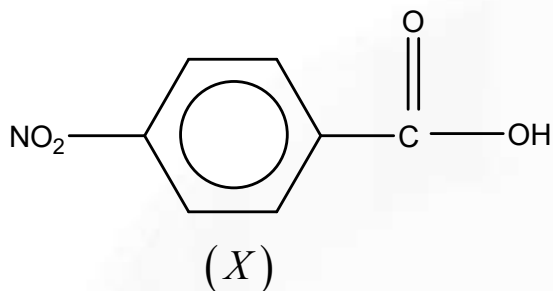


60. The shape of the complex $[Cu(NH_3)_6]^{+2}$ is
- 1) octahedral
 - 2) square planar
 - 3) square pyramid
 - 4) triangular planar
61. Angular momentum of electron in H atom in 4^{th} orbit is
- 1) $\frac{2h}{\pi}$
 - 2) $\frac{h}{2\pi}$
 - 3) $\frac{h}{4\pi}$
 - 4) $\frac{4h}{\pi}$
62. Statement-I : $[Cr(NH_3)_4Cl_2]Cl$ precipitates 2 moles of $AgCl$ with excess of $AgNO_3$
Statement-II: $[Cr(NH_3)_4Cl_2]Cl$ has two ionisable chloride ions.
- 1) Statement-I is correct Statement-II is incorrect
 - 2) Statement-I and II are correct
 - 3) Statement-I and II are incorrect
 - 4) Statement-I is incorrect Statement-II is correct
63. The number of moles glucose present in a one litre solution of molarity 1.38M is (mol mass of glucose = 180)
- 1) 2.22
 - 2) 1.38
 - 3) 1.93
 - 4) 0.5
64. Pyranose ring consist of a Skelton of
- 1) 5 carbon atoms and one oxygen atom
 - 2) 9 carbon atoms
 - 3) 7 carbon atoms and one oxygen atom
 - 4) 8 carbon atoms and one oxygen atom
65. Temperature change of ideal gas in reversible isothermal process is
- 1) 0
 - 2) 10
 - 3) 273
 - 4) 373





66. Arrange the following acids in decreasing order of acidity.

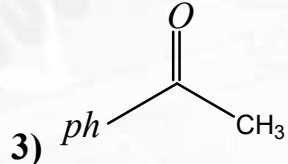
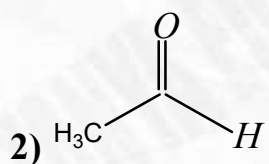
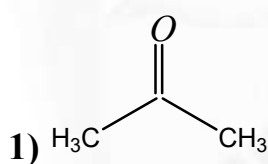


- 1) $X > Z > Y$ 2) $X > Y > Z$ 3) $Z > X > Y$ 4) $Z > Y > X$

67. Calculate molality of CCl_4 dissolved in Benzene with depression in freezing point of solution is $0.25^\circ C$. (Given $K_f = 5.12 \text{ K kg mol}^{-1}$)

- 1) $\frac{1}{20.48}$ 2) 20.48 3) $\frac{1}{5.12}$ 4) 5.12

68. Compound 'X' give positive test with 2,4-DNP. Compound (x) may be



4) All

69. Which of the following order is correct

- 1) $F > Cl > Br > I$ [Ionisation energy]
 2) $I_2 > Br_2 > F_2 > Cl_2$ [Bond energy]
 3) Sulphur > Selenium > Tellurium > Polonium > Oxygen [Ionisation energy]
 4) Sulphur > Oxygen > Fluorine > Selenium [Electro negativity]

70. **Assertion(A):** Manganese show a maximum oxidation state +5

Reason(R) : manganese has 7 electrons in the 3d subshell

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



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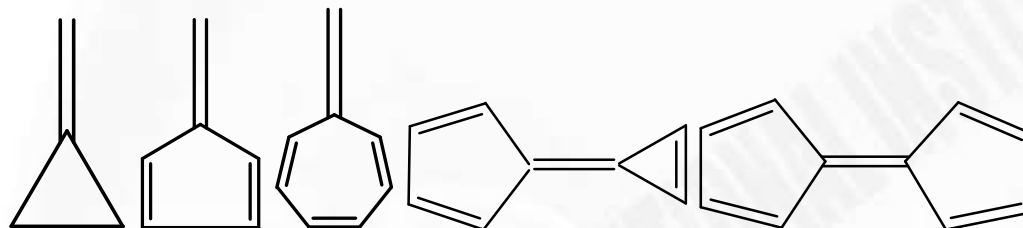
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**SECTION-II(NUMERICAL VALUE TYPE)**

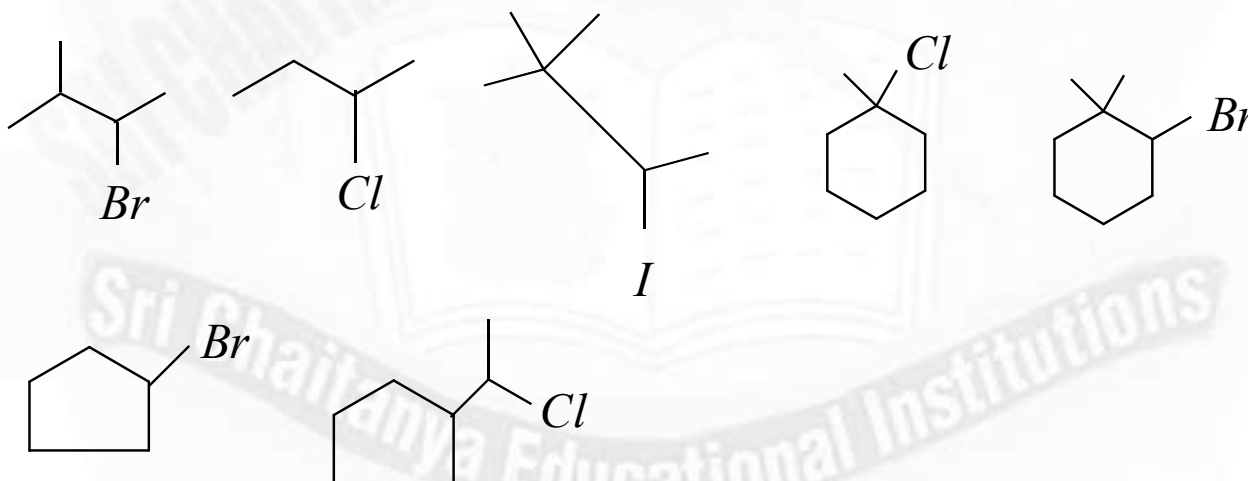
This section contains **5 Numerical Value Type Questions**. The Answer should be within **0 to 9999**. If the Answer is in **Decimal** then round off to the **Nearest Integer** value (Example i.e. If answer is above **10** and less than **10.5** round off is **10** and If answer is from **10.5** and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

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

71. Rate constant of a reaction doubles for every 10°C rise in temperature. If rate constant of reaction is 3 min^{-1} at 30°C . What is rate constant at 40°C ?
72. Find out number of compounds which contain carbon ring.



73. Consider the equilibrium reaction $2\text{NO}_2(\text{g}) \rightleftharpoons \text{N}_2\text{O}_4(\text{g})$; the equilibrium pressures of NO_2 and N_2O_4 are 2 atm and 4 atm respectively at 300 K. K_P for the equilibrium is ____ (nearest integer)
74. How many substrates are 3° halides?



75. The number of moles of HCl required for the complete neutralization of 5L of 0.2 M NaOH is ____

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