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.Super60_STERLING BT	**JEE-MAIN**	**Date: 23-08-2025**
Time: 09:00AM to 12:00PM	**RPTM-03**	**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

   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:** _____

23-08-25_Sr.Super60_STERLING BT_Jee-Main_RPTM-03_Test Syllabus

MATHEMATICS : AOD

PHYSICS : Ray Optics: Refraction at plane and spherical surfaces
Geometrical Optics: Total internal reflection, Thin lenses, Combinations of mirrors and thin lenses, Magnification. Experiments: focal length of a convex lens and convex and concave mirrors using UV method (parallax method), The plot of the angle of deviation vs angle of incidence for a triangular prism. Refractive index of a glass slab using a travelling microscope. Deviation and dispersion of light by a prism (Important for ADVANCED)
(In Phy & Che Each Out of 25Qs, 10 Qs From NCERT is Mandatory)

CHEMISTRY : Alkene & Alkyne: Preparation, properties and reactions of alkenes and alkynes. Physical properties of alkenes and alkynes (boiling point, density and dipole moments), Acidity of alkynes, Acid catalysed hydration of alkenes and alkynes (excluding the stereochemistry of addition and elimination), Reactions of alkenes, Preparation of alkenes and alkynes by elimination reactions, Electrophilic addition reactions of alkenes with X2, HX, HOX (X=halogen), Effect of peroxide on addition reactions, cyclic polymerization reaction of alkynes, Addition reactions of alkynes, Metal acetylides.Reactions of alkenes with KMnO4 and ozone, Reduction of alkenes and alkynes
Benzene: Reactions of benzene, Structure and aromaticity, Electrophilic Substitution Reactions, halogenation, nitration, sulphonation, friedel- crafts alkylation and acylation, Effect of directing groups (mono substituted benzenes) in these reactions.
(In Phy & Che Each Out of 25Qs, 10 Qs From NCERT is Mandatory)

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. A point on the parabola $y^2 = 18x$ at which the ordinate increases at twice the rate of the abscissa is

   1) $\left(\frac{9}{8},\frac{9}{2}\right)$ 2) $(2,-4)$ 3) $\left(\frac{-9}{8},\frac{9}{2}\right)$ 4) $(2,4)$

2. The sum of all local minimum values of the function $f(x)=\begin{cases} 1-2x & x<-1 \\ \frac{1}{3}(7+2|x|) & -1\le x\le 2 \\ \frac{11}{18}(x-4)(x-5) & x>2 \end{cases}$

   1) $\frac{171}{72}$ 2) $\frac{131}{72}$ 3) $\frac{157}{72}$ 4) $\frac{167}{72}$

3. If the local maximum value of the function

   $f(x)=\left(\frac{\sqrt{3e}}{2\sin x}\right)^{\sin^2 x}, x\in\left(0,\frac{\pi}{2}\right)$, *is* $\frac{k}{e}$, *then* $\left(\frac{k}{e}\right)^8+\frac{k^8}{e^5}+k^8$ is equal to

   1) $e^5+e^6+e^{11}$ 2) $e^3+e^5+e^{11}$ 3) $e^3+e^6+e^{11}$ 4) $e^3+e^6+e^{10}$

4. If xy^4 attains maximum value at the point (x,y) on the line passing through the points $(50+\alpha,0)$ *and* $(0,50+\alpha), \alpha>0,$ *then* (x,y) also lies on the line:

   1) $y=4x$ 2) $x=4y$ 3) $y=4x+\alpha$ 4) $x=4y-\alpha$

5. A wire of length 22 m is to be cut into two pieces. One of the pieces is to be made into a square and the other into an equilateral triangle. Then the length of the side of the equilateral triangle, so that the combined area of the square and the equilateral triangle is minimum is

   1) $\frac{22}{9+4\sqrt{3}}$ 2) $2\left(9-4\sqrt{3}\right)$ 3) $\frac{22}{4+9\sqrt{3}}$ 4) $\frac{66}{4+9\sqrt{3}}$

6. The length of the sides of a triangle are $10+x^2, 10+x^2$ *and* $20-2x^2$. If for x=k, the area triangle is maximum, then $3k^2-1$ is equal is:

1) 5 2) 8 3) 9 4) 10

7. Let $g(x)=3f\left(\frac{x}{3}\right)+f(3-x)$ *and* $f''(x)>0$. For all $x\in(0,3)$ If g is decreasing in $(0,\alpha)$ and increasing in $(\alpha,3)$ then $8\alpha-1$ is

1) 24 2) 0 3) 17 4) 20

8. The maximum value of $3\cos\theta+5\sin\left(\theta-\frac{\pi}{6}\right)$ for any real value of θ is:

1) $\sqrt{19}$ 2) $\frac{\sqrt{79}}{2}$ 3) $\sqrt{34}$ 4) $\sqrt{31}$

9. Let x,y be positive real numbers and m,n positive integers. The maximum value of the expression $\frac{3x^m y^n}{\left(1+x^{2m}\right)\left(1+y^{2n}\right)}$ is :

1) 1 2) $\frac{1}{2}$ 3) $\frac{3}{4}$ 4) $\frac{m+n}{6mn}$

10. Let the function $f(x)=\frac{x}{3}+\frac{3}{x}+3, x\neq 0$ be strictly increasing in $(-\infty,\alpha_1)\cup(\alpha_2,\infty)$ and strictly decreasing $(\alpha_3,\alpha_4)\cup(\alpha_4,\alpha_5)$. Then $\sum_{i=1}^{5}\alpha_i^2$ is equal to :

1) 48 2) 28 3) 40 4) 36

11. Let $(2,3)$ be the largest open interval in which the function $f(x)=2\log_e(x-2)-x^2+ax+1$ is strictly increasing and (b,c) be the largest open interval, in which the function $g(x)=(x-1)^3(x+2-a)^2$ is strictly decreasing. Then $100(a+b+c)$ is equal to :

1) 760 2) 360 3) 420 4) 160

12. For the function $f(x)=(\cos x)-x+1, x\in R,$ between the following two statements

(S1): $f(x)=0$ for only one value of x *is* $[0,\pi]$.

(S2): $f(x)$ is decreasing in $\left[0,\frac{\pi}{2}\right]$ and increasing in $\left[\frac{\pi}{2},\pi\right]$.

1) Both (S1) and (S2) are correct 2) Only (S1) is correct

3) Both (S1) and (S2) are incorrect 4) Only (S2) is correct

13. If $f''(x)>0\ \forall\ x\in R, f'(3)=0,$ *and* $g(x)=f\left(\tan^2 x-2\tan x+4\right), 0<x<\frac{\pi}{2},$ then g(x) is increasing in

1) $\left(0,\frac{\pi}{4}\right)$ 2) $\left(\frac{\pi}{6},\frac{\pi}{3}\right)$ 3) $\left(0,\frac{\pi}{3}\right)$ 4) $\left(\frac{\pi}{4},\frac{\pi}{2}\right)$

14. If $f(x)=\frac{t+3x-x^2}{x-4}$, where t is a parameter that has a minimum and maximum, then the range of values of t is

1) $(0,4)$ 2) $(0,\infty)$ 3) $(-\infty,4)$ 4) $(4,\infty)$

15. The value of a for which the function $f(x)=a\sin x+(1/3)\sin 3x$ has an extremum at $x=\pi/3$ is

1) 1 2) -1 3) 0 4) 2

16. The least value of a for which the equation $\frac{4}{\sin x}+\frac{1}{1-\sin x}=a$ has at least one solution in the interval $(0,\pi/2)$

1) 9 2) 4 3) 8 4) 1

17. The largest area of a trapezium inscribed in a semi-circle of radius R, if the lower base is on the diameter is

1) $\frac{3\sqrt{3}}{4}R^2$ 2) $\frac{\sqrt{3}}{2}R^2$ 3) $\frac{3\sqrt{3}}{8}R^2$ 4) R^2

18. The maximum area of the rectangle whose sides pass through the vertices of a given rectangle of sides a and b is

1) 2(ab) 2) $\frac{1}{2}(a+b)^2$ 3) $\frac{1}{2}(a^2+b^2)$ 4) $(a-b)^2$

19. $f(x)$ is polynomial function of degree 6, which satisfies $\lim_{x\to 0}\left(1+\frac{f(x)}{x^3}\right)^{1/x}=e^2$ and has local maximum at x = 1 and local minimum at x = 0 and x = 2.

	Column-I		Column-II
a.	The coefficient of x^6	p)	0
b.	The coefficient of x^5	q)	2
c.	The coefficient of x^4	r)	$-\frac{12}{5}$
d.	The coefficient of x^3	s)	$\frac{2}{3}$

1) $a\to s,b\to r,c\to q,d\to p$ 2) $a\to s,b\to r,c\to p,d\to q$

3) $a\to r,b\to s,c\to p,d\to q$ 4) $a\to r,b\to s,c\to q,d\to p$

20. The sum of absolute maximum and absolute minimum values of the function $f(x)=|2x^2+3x-2|+\sin x\cos x$ in the interval $[0,1]$ is:

1) $3+\frac{\sin(1)\cos^2\left(\frac{1}{2}\right)}{2}$ 2) $3+\frac{1}{2}(1+2\cos(1))\sin(1)$

3) $5+\frac{1}{2}(\sin(1)+\sin(2))$ 4) $2+\sin\left(\frac{1}{2}\right)\cos\left(\frac{1}{2}\right)$

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. Let $A=\left[a_{ij}\right]$ be a 3×3 matrix, where $a_{ij}=\begin{cases}2, if\ i=j\\ -x, if\ |i-j|=1\\ 2x, otherwise\end{cases}$. Let a function $f:R\to R$ be defined as $f(x)=\det(A)$. then the sum of maximum and minimum values f on R is equal to

22. The sum of all the local minimum values of the twice differentiable function $f:R\to R$ defined by $f(x)=x^3-3x^2-\frac{3f''(2)}{2}x+f''(1)$ is K then $|K|=$

23. If a line touches the curve at P(a,a) of the curve $y(2a-x)=x^2$, also cuts x-axis at Q and its perpendicular line at the same point P(a,a) on the curve cuts y-axis at R , area of triangle PQR is $\frac{ka^2}{3}$. Then k=

24. The number of distinct real roots of the equation $x^5\left(x^3-x^2-x+1\right)+x\left(3x^3-4x^2-2x+4\right)-1=0$ is_____.

25. Let f(x) be a function defined on R such that $f'(x)=2010(x-2009)(x-2010)^2(x-2011)^3(x-2012)^4$ for all $x\in R$. If g is a function defined on R with values in $(0,\infty)$ such that $f(x)=\ln(g(x))$ for all $x\in R$. The number of the points in R at which g has a local maximum is

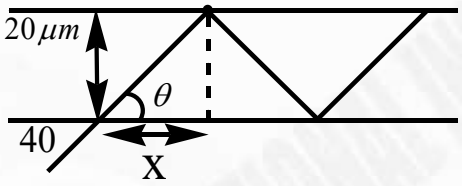
PHYSICS **Max Marks: 100**

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. In figure the optical fiber is $l = 2m$ long and has a diameter of $d = 20\mu m.$ if a ray of light is incident on one end of the fiber at angle $\theta_1 = 40^0,$ the number of reflections it makes before emerging from the other end is close to : $(\mu = 1.31, \sin 40^0 = 0.64)$



1) 55000 2) 66000 3) 115000 4) 57000

27. Light from a point source in air falls on a convex curved surface of radius 20cm and refractive index 1.5. If the source is located at 200cm from the convex surface, the image will be formed at____ cm from the object

1) 200 2) 300 3) 400 4) 275

28. A car is moving with a constant speed of 60km h^{-1} on a straight road. Looking at the rear view mirror, The driver finds that the car following him is at a distance of 100 m and is approaching with a speed of 5 km h^{-1}. In order to keep track of the car in the rear, the driver begins to glance alternatively at the rear and side mirror of his car after every 2s till the other car overtakes. If the two cars were maintaining their speeds, which of the following statement is correct?

1) The speed of the car in the rear is 65km h^{-1}

2) In the side mirror, the car in the rear would appear to approach with a speed of 5 km h^{-1} to the driver of leading car.

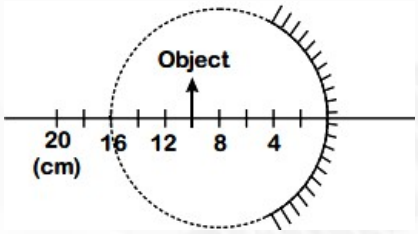
3) In the rear view mirror, the speed of the approaching car would appear to decreases as the distance between the cars decreases

4) In the side mirror, the speed of the approaching car would appear to increase as the distance between the cars decreases

29. The refractive index of a transparent liquid filled in an equilateral hollow prims is $\sqrt{3}$. The angle of minimum deviation for the liquid will be

1) 30^0 2) 40^0 3) 10^0 4) 60^0

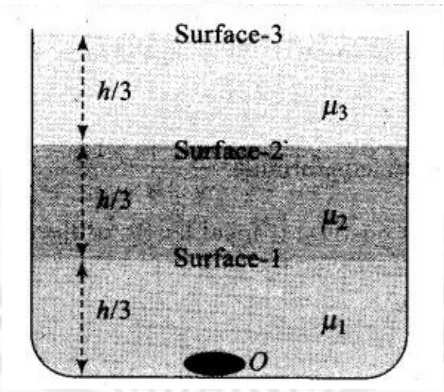
30. A spherical mirror is obtained as shown in the figure from a hollow glass sphere. If an object is positioned in front of the mirror, what will be the nature and magnification of the object?



1) Inverted, real and magnified 2) Erect, virtual and magnified

3) Erect, virtual and unmagnified 4) inverted, real and unmagnified

31. Three immiscible liquids of densities $d_1 > d_2 > d_3$ and refractive indices $\mu_1 > \mu_2 > \mu_3$ are put in a beaker. The height of each liquid column is $\frac{h}{3}$. a dot is made at the bottom of the beaker. For near normal vision, find the apparent depth of the dot.



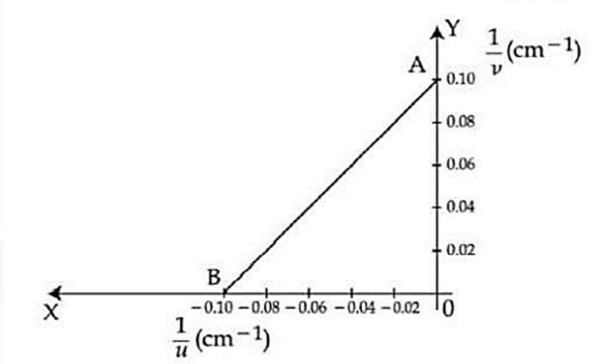
1) $\frac{h}{3}\left(\frac{1}{\mu_1}+\frac{1}{\mu_2}+\frac{1}{\mu_3}\right)$ 2) $\frac{h}{2}\left(\frac{1}{\mu_1}+\frac{1}{\mu_2}+\frac{1}{\mu_3}\right)$

3) $\frac{h}{4}\left(\frac{1}{\mu_1}+\frac{1}{\mu_2}+\frac{1}{\mu_3}\right)$ 4) $\frac{h}{1}\left(\frac{1}{\mu_1}+\frac{1}{\mu_2}+\frac{1}{\mu_3}\right)$

32. A convex lens of refractive index 1.5 and focal length 20cm in air is immersed in water. The change in local length of the lens will be cm. (Given refractive index of water $=\frac{4}{3}$)

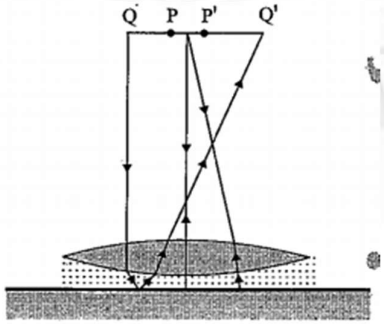
1) 64cm 2) 23cm 3) 60cm 4) 54cm

33. The graph between $\frac{1}{u}$ *and* $\frac{1}{v}$ for a thin convex lens in order to determined its focal length is plotted as shown in the figure. The refractive index of lens is 2 and its both the surfaces have same radius of curvature R. The value of R will be



1) 20cm 2) 30 cm 3) 40 cm 4) 10 cm

34. Fig shows an equiconvex lens (of refractive index 1.5) in contact with a liquid layer on top of a plane mirror. A small needle with its tip on the principle axis is moved along the axis until its inverted image is found at the position of the needle. The distance of the needle from the lens is measured to be 40cm. The liquid is removed and the experiment is repeated the new distance is measured to be 30cm. What is refractive index of liquid?



1) 1.45 2) 1.25 3) 0.25 4) 2.25

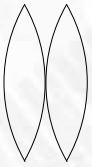
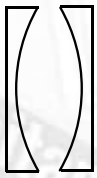
35. Will the focal length of a lens for red light be more, same or less than that for blue light?

1) $f_{red} > f_{blue}$ 2) $f_{red} = f_{blue}$ 3) $f_{red} < f_{blue}$ 4) none

36. The difference of speed of light in the two media A and B $(v_A - v_B)$ is $5.2 \times 10^7 m/s$. If the refractive index of medium B is 1.47, then the refractive index of medium B to medium A is: (Given speed of light in vacuum $3 \times 10^8 m/s$)

1) 1.303 2) 1.318 3) 1.13 4) 1.173

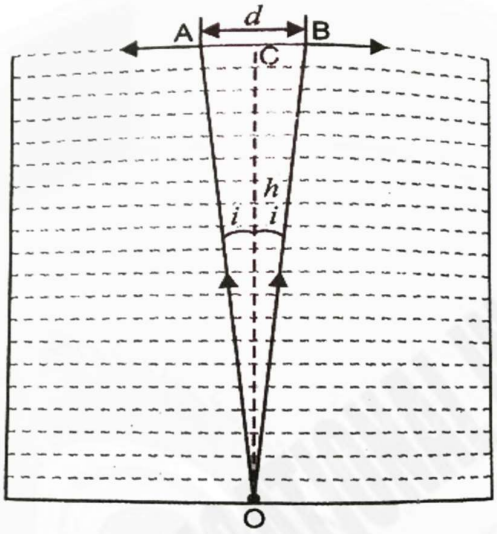
37. Four combinations of two thin lenses are given in List-I, The radius of curvature of all curved surfaces is r and the refractive index of all the lenses is 1.5 match lens combinations in List-I with their focal length in List-II and select the correct answer using the code given below the lists

	List-I		List-II
P)		1)	2r
Q)		2)	r/2
R)		3)	–r
S)		4)	R

1) $P \to 1, Q \to 2, R \to 3, S \to 4$ 2) $P \to 2, Q \to 4, R \to 3, S \to 1$

3) $P \to 4, Q \to 1, R \to 2, S \to 3$ 4) $P \to 2, Q \to 1, R \to 3, S \to 4$

38. A jar of height h is filled with a transparent liquid of refraction index μ. At the center of the jar on the bottom surface is a dot. Find the minimum diameter of a disc, such that when placed on the top surface symmetrically about the center, the dot is invisible.



1) $d=\frac{h}{\sqrt{\mu^2-1}}$ 2) $d=\frac{2h}{\sqrt{\mu^2-1}}$ 3) $d=\frac{3h}{\sqrt{\mu^2-1}}$ 4) $d=\frac{1}{\sqrt{\mu^2-1}}$

39. A fish rising vertically upward with a uniform velocity of $8ms^{-1}$, observes that a bird is diving vertically downward towards the fish with the velocity of $20\,ms^{-1}$. If the refractive index of water is $\frac{4}{3}$, then the actual velocity of the diving bird to pick the fish, will be ms^{-1},

1) 4 m/s 2) 2 m/s 3) 3 m/s 4) 9 m/s

40. A short pulse of white light is incident from air to a glass slab at normal incidence. After travelling though the slab, the first colour to emerge is

1) blue 2) green 3) violet 4) red

41. A planoconvex lens becomes an optical system of 18 cm focal length when its plane surface is silvered and illuminated from left to right as shown in fig-A. If the same lens is instead silvered on the curved surface and illuminated from other side as in fig B, its acts like an optical system of focal length 10 cm. the refractive index of the material of lens if:

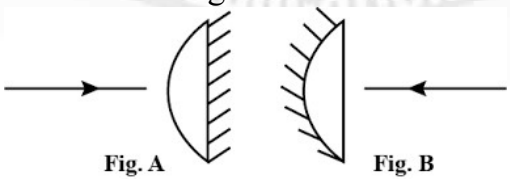


Fig. A Fig. B

1) 1.50 2) 2.25 3) 1.75 4) 1

42. Statement-1: When a prism of $\mu = 3/2$ is immersed in water $(\mu = 4/3)$, deviation through the prism becomes 1/4th of the deviation, when the prism is in air.

Statemetn-2: It follows from $\delta = (\mu - 1)A$

1) Starement-1 is true, statement-2 is true. Statement-2 is correct explanation of statement-1

2) Statement-1 is true, statement-2 is true, but statement-2 is not correct explanation of statement-1

3) statement-1 is true, statement-2 is false

4) statement-1 false, statement-2 is true

43. Statement-1: A convex lens always forms a real image

Statement-2: A convex lens can also form a virtual image when the object is placed between the focus and the optical center.

1) Starement-1 is true, statement-2 is true. Statement-2 is correct explanation of statement-1

2) Statement-1 is true, statement-2 is true, but statement-2 is not correct explanation of statement-1

3) statement-1 is true, statement-2 is false

4) statement-1 false, statement-2 is true

44. Assertion: The images formed by total internal reflections are much brighter than those formed by mirrors or lenses.

Reason: There is no loss of intensity in total internal reflection.

1) In both assertion and reason are true and reason is the correct explanation of Assertion.

2) If both assertion and reason are true and reason is not the correct explanation of assertion

3) If assertion is true but reason is false.

4) If both assertion and reason are false.

45. Assertion: A convex lens of glass $(\mu = 1.5)$ behave as a diverging lens when immersed in carbon disulphide of higher refractive index $(\mu = 1.65)$

Reason: A diverging lens is thinner in the middle and thicker at the edges.

1) If both assertion and reason are true and reason is the correct explanation of assertion.

2) If both assertion and reason are true and reason is not the correct explanation of assertion.

3) If assertion is true but reason is false.

4) If both assertion and reason are 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 deviation of 2^0 is produced on the yellow ray when prism of crown and flint glass are achromatically combined. Taking dispersive powers of crown and flint glass are 0.02 and 0.03 respectively and refractive index for yellow light for these glasses are 1.4 and 1.6, respectively. The refracting angles for crown glass prism will be…… (In degree)(Round off to the nearest integer)

47. The distance between an object and screen is 100cm. A lens can produce real image of the object on the screen for two different positions between the screen and the object. The distance between these two positions is 40cm. If the power of the lens is close to $\left(\frac{N}{200}\right)$D Where N is an integer, the value of N is_____.

48. The image of a small electric bulb is fixed on the wall of a room is to be obtained on opposite wall 8m away by means of large convexlens. What is the maximum possible focal length of the lens required for this propose

49. A small pin fixed on a table top is viewed from above from a distance of 50 cm. By what Distance would the pin appear to be raised if it is viewed from the same point through a 18 cm thick glass slab held parallel to the table? Refractive index of glass=1.5

50. A beam of light converges at a point P. Now a lens is placed in the path of convergent beam 12 cm from P. At what point does the beam converge if the lens is a convex lens of focal length 6 cm.

CHEMISTRY

Max Marks: 100

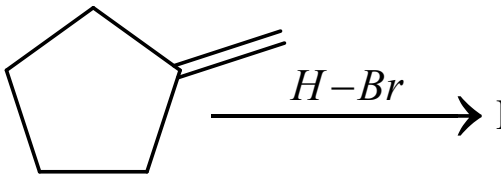
SECTION-I (SINGLE CORRECT ANSWER TYPE)

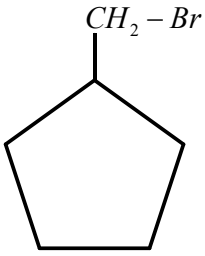
This section contains **20 Multiple Choice Questions.** Each question has 4 options (1), (2), (3) and (4) for its answer, out of which ONLY ONE option can be correct.

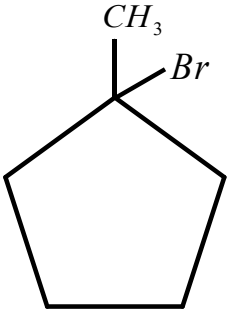
Marking scheme: +4 for correct answer, 0 if not attempted and –1 in all other cases.

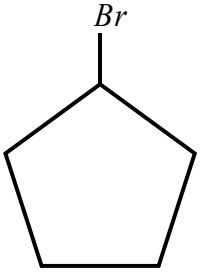
51. Statement I: Alkenes are more reactive than alkynes in electrophilic addition reactions
Statement II: Alkyl carbocation is more stable than vinyl carbocation
1) Both statement I and statement II are correct
2) Both statement I and statement are incorrect
3) Statement I is correct but statement II is incorrect
4) Statement I is incorrect but statement II is correct

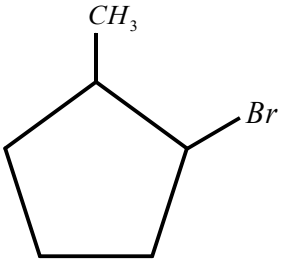
52.



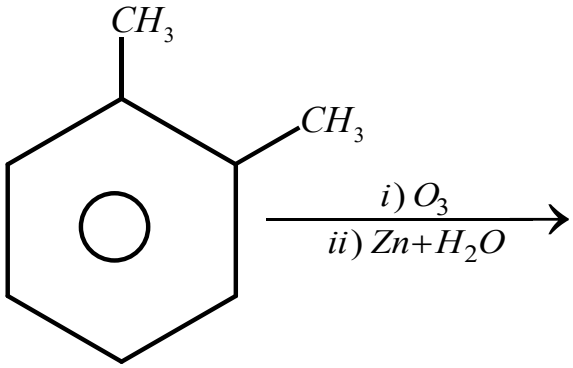
1) 

2) 

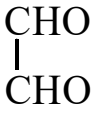
3) 

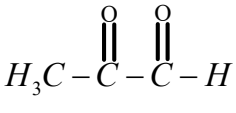
4) 

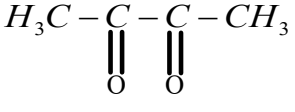
53.

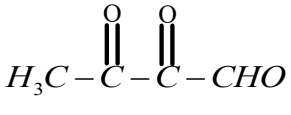


Which of the following products cannot be obtained in Ozonalysis of O- xylene

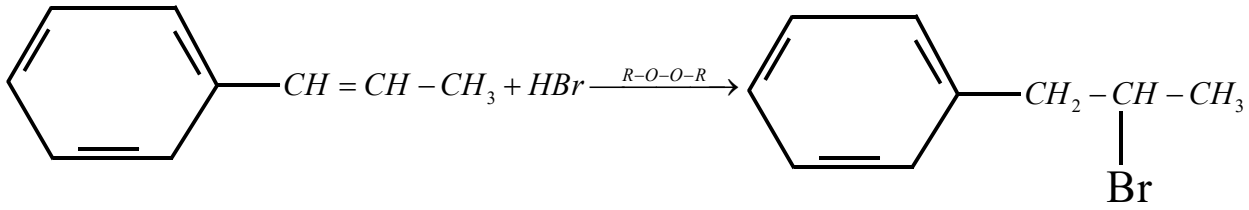
1) 

2) 

3) 

4) 

54. Assertion (A):



(Major Product)

Reason (R): When reaction is carried out in the presence of peroxide, it follows free radical addition, benzylic freeradical is more stable than alkyl freeradical

1) Both A and R are false 2) Both A and R are true

3) A is false and R is true 4) A is true and R is false

55. Statement I: Benzene do not decolorize the reddish orange colour of bromine solution in carbon tetrachloride

Statement II: In benzene all six $\pi - bond$ electrons are delocalized

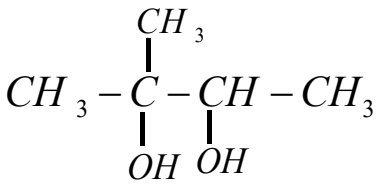
1) Statement-1 and statement-2 are incorrect

2) Statement-1 and statement-2 are correct

3) Statement-1 correct, statement-2 incorrect

4) Statement-1 incorrect, statement-2 correct

56. 2-methyl-2-butene with cold alkaline $KMnO_4$ will give



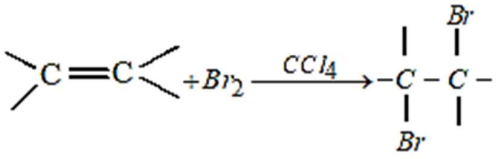
1)

2) One molecule of $CH_3 - CO - CH_3$ and one molecule of $CH_3 - CHO$

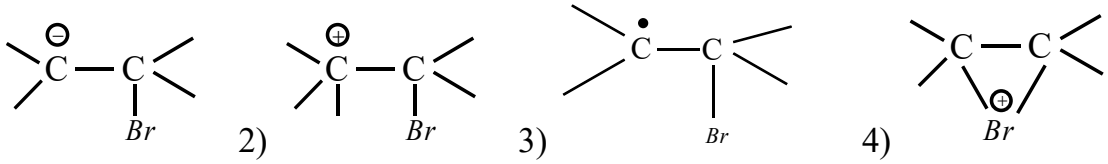
3) Two molecules of CH_3COOH

4) Two molecules of $CH_3 - COOH$ and one molecule of CO_2

57.



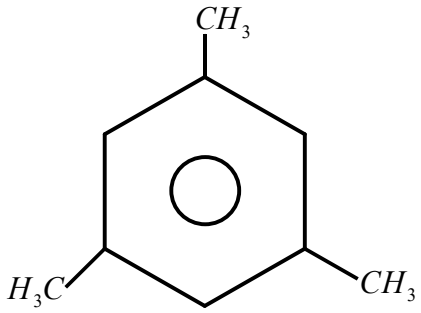
Which of the following intermediate involved in this reaction



1) 2) 3) 4)

58. Column-I Column-II

A) $Mg_2C_3 \xrightarrow{H_2O}$ p. $H_3C-C\equiv C-CH_3$

B) $H-C\equiv C-H \xrightarrow[CH_3I(excess)]{NaNH_2(excess)}$ q. 

C) $H_3C-CH_2-C\equiv C-H \xrightarrow[Hg^{2+}]{H_2O}$ r. $CH_3-CH_2-\overset{\overset{O}{\|}}{C}-CH_3$

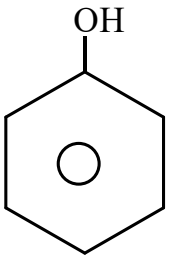
D) $3H_3C-C\equiv C-H \xrightarrow[\Delta]{Fe}$ s. C_3H_4

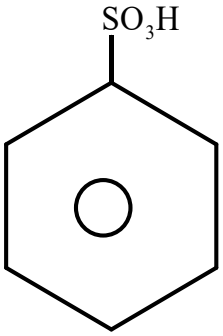
The correct match is

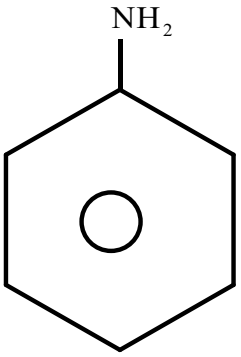
1) $A-q,B-r,C-s,D-p$ 2) $A-s,B-p,C-r,D-q$

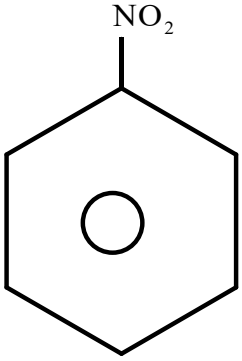
3) $A-p,B-q,C-s,D-r$ 4) $A-r,B-s,C-q,D-p$

59. $2CHI_3 \xrightarrow[\Delta]{Ag(Powder)} [A] \xrightarrow[\Delta]{Fe} [B] \xrightarrow{HNO_3+H_2SO_4} [C]$ The final product (C) is

1) 

2) 

3) 

4) 

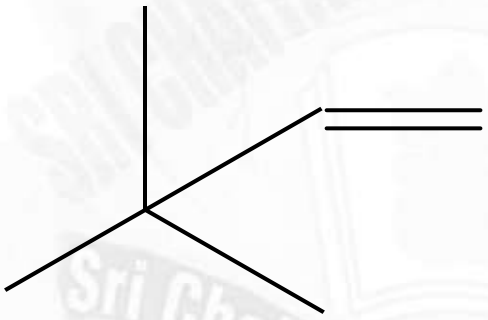
60.

$$CH_3-\underset{Cl}{CH}-\underset{Cl}{CH_2} \xrightarrow[\Delta]{Zn(alc)} A \xrightarrow[Zn+H_2O]{1)\ O_3} C+D$$

C,D respectively are

1) $HCHO, CH_3-CH_2-OH$
2) $HCHO, CH_3CHO$
3) CH_3OH, CH_3CHO
4) CH_3OH, CH_3COOH

61.

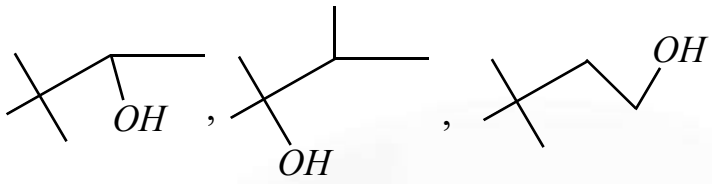


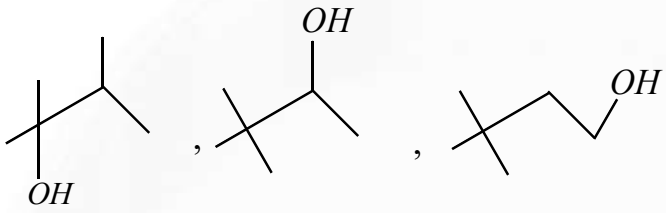
$$\xrightarrow{H_2O/H^+} X(major)$$

$$\xrightarrow[ii)H_2O_2+OH^-]{i)\ BH_3\,|\,THF} Y(major)$$

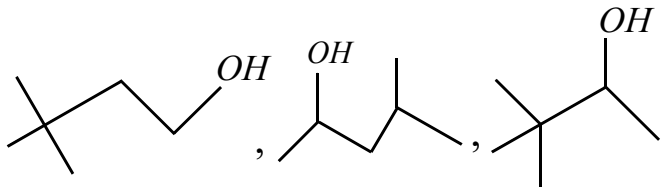
$$\xrightarrow[ii)NaBH_4+\overline{O}H]{i)\ Hg(OAc)_2+H_2O} Z(major)$$

X,Y,Z are respectively are

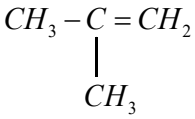
1) 

2) 

3) 

4) 

62. The correct order of reactivity in hydrogenation of the following alkenes



P) $H_2C=CH_2$ Q) $CH_3-CH=CH_2$ R) S) $CH_3-CH=CH-CH_3$

1) $P>R>Q>S$ 2) $P>Q>S>R$ 3) $S>R>Q>P$ 4) $P>S>Q>R$

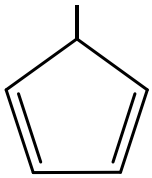
63. Which one is the correct order of acidity?

1) $CH_2=CH_2>HC\equiv CH>CH_3-CH_3>CH_3C\equiv CH$

2) $HC\equiv CH>H_3C-C\equiv CH>H_2C=CH_2>H_3C-CH_3$

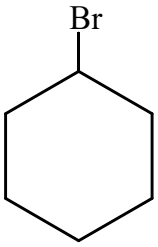
3) $H_3C-CH_3>H_2C=CH_2>H_3C-C\equiv CH>HC\equiv CH$

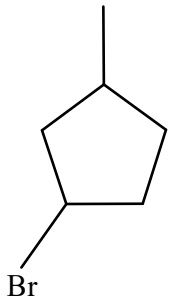
4) $HC\equiv CH>H_3C-C\equiv C-H>H_3C-CH_3>H_2C=CH_2$

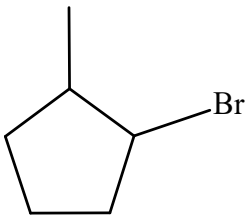


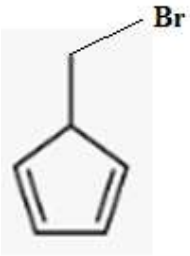
$$\xrightarrow{Br_2/hv} Major(X) \xrightarrow[\Delta]{KOH(alc)} Major(Y)$$

64. $Major(Y) \xrightarrow[R-O-OR]{H-Br} Major(Z)$ *The product Z is*

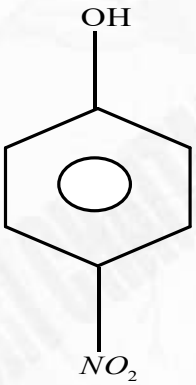
1) 

2) 

3) 

4) 

65. Predict the major product of the following reaction:



$$\xrightarrow[H_2SO_4]{HNO_3} \text{A (major product)}$$

1) 2, 4 - dinitrophenol

2) 3, 4 – dinitro phenol

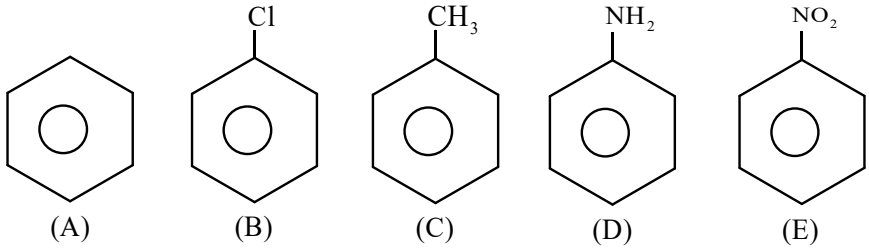
3) 2, 4, 6 – trinitro phenol

4) 3, 4, 5 – trinitro phenol

66. A compound on dehydro halogenation with alcoholic KOH gives alkyne but on dehalogenation with zinc dust gives alkene, The compound is

1) C_2H_5Br 2) CH_3CHBr_2 3) $Br-CH_2-CH_2-Br$ 4) $Br_2CH-CHBr_2$

67. Arrange the following set of compounds in the order of their increasing order of reactivity in Electrophilic substitution reaction



1) $E > B > A > C > D$ 2) $C > A > B > E > D$

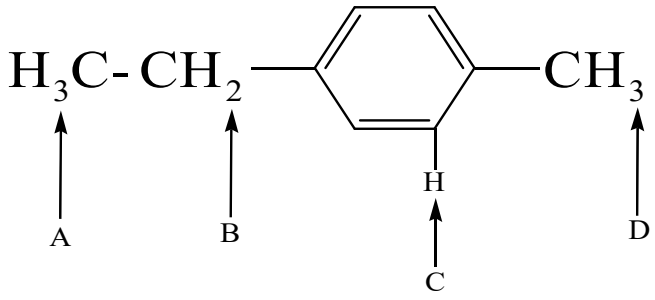
3) $C > D > A > B > E$ 4) $D > C > A > B > E$

68. In the sulphonation, acetylation and formylation of benzene the group of effective electrophiles would be

1) $\overset{\oplus}{S}O_2, CH_3\overset{\oplus}{C}H_2, .H\overset{\oplus}{C}O$ 2) $SO_3, H_3C\overset{\oplus}{C}O, .H\overset{\oplus}{C}O$

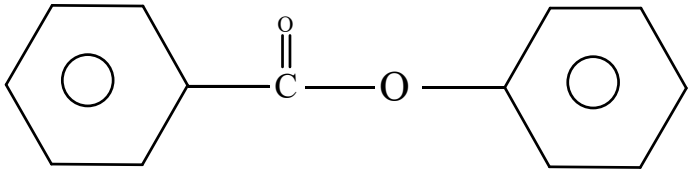
3) $\overset{\oplus}{S}O_3, CH_3\overset{\oplus}{C}O, .H\overset{\oplus}{C}O$ 4) $SO_2, \overset{\oplus}{C}H_2 - CHO, H\overset{\oplus}{C}O$

69. Which of the following hydrogens is most easily abstracted on reaction with bromine free radical $(\overset{\bullet}{B}r)$

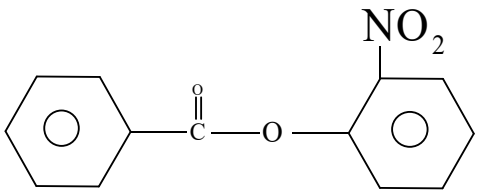


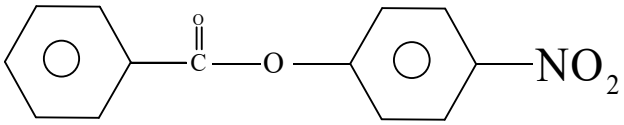
1) A 2) B 3) C 4) D

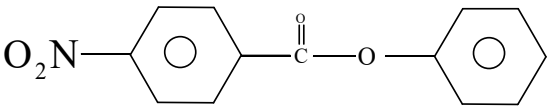
70. Which of the following is major product for the mononitration of?

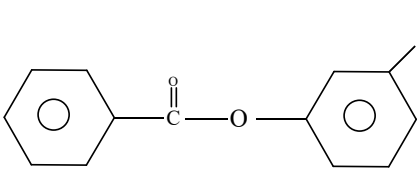


(Phenylbenzoate)

1) 

2) 

3) 

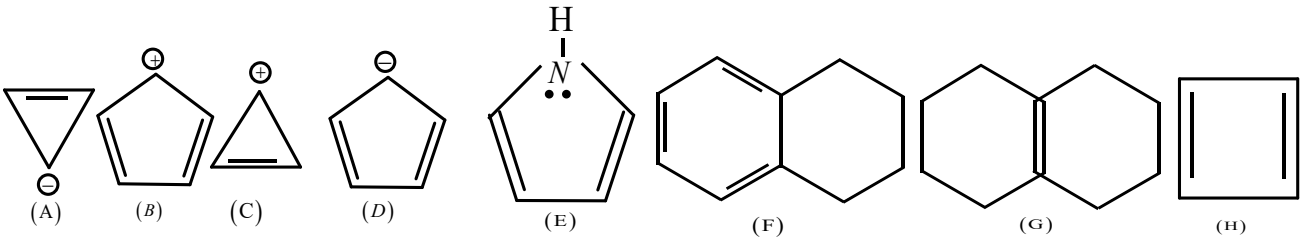
4) 

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. The number of aromatic compounds in the given below



72. Identify the total number of O,P directing for electrophilic substitution

$-\overset{\Theta}{O}, -CF_3, -CH_3, -NO_2, NH_2, -OH, -CN, -COOH, -OCH_3, -CH(CH_3)_2,$
$-SO_3H, -CHO, -NHCOCH_3, -COR$

73. How many structures are possible for C_5H_8 with one triple bond?

74. Maximum number of Coplanar atoms of 2 – butyne are_____

75. The number of compounds having more reactivity than chloro benzene in electrophilic substitution.

Benzene, nitrobenzene, Toluene, Aniline , Benzaldehyde, Phenol, acetophenone, Benzophenone.

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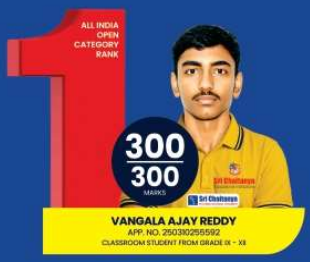
31 STUDENTS BELOW 100 AIR



VANGALA AJAY REDDY
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DEVDUTTA MAJHI
APP. NO. 250310016185
DLP/AITS STUDENT

TOSHNIWAL SHIVEN
APP. NO. 250310391420
DLP/AITS STUDENT

SAKSHAM JINDAL
APP. NO. 250310236696
DLP/AITS STUDENT

BELOW 100	BELOW 500	BELOW 10	BELOW 100	BELOW 1000
31	95	10	98	579
ALL INDIA OPEN CATEGORY RANKS	ALL INDIA OPEN CATEGORY RANKS	ALL INDIA CATEGORY RANKS COUNT	ALL INDIA CATEGORY RANKS COUNT	ALL INDIA CATEGORY RANKS COUNT

TOTAL QUALIFIED RANKS FOR JEE ADVANCED-2025 22,094

*DLP/AITS

JEE 2025 STARS SHINE BRIGHT

Sri Chaitanya Tops JEE ADVANCED

ALL INDIA OPEN CATEGORY RANKS

RUTVIK SAI
H.T.No. 256055278 (OBC-NCL)

MAJID MUJAHID HUSAIN
H.T.No. 251134112*

UJJWAL KESARI
H.T.No. 252016104*

AKSHAT KUMAR CHAURASIA
H.T.No. 254065055*

BELOW 100	BELOW 500	BELOW 1000	BELOW 1000	NUMBER OF QUALIFIED RANKS
ALL INDIA OPEN CATEGORY RANKS	ALL INDIA OPEN CATEGORY RANKS	ALL INDIA OPEN CATEGORY RANKS	ALL INDIA CATEGORY RANKS COUNT	
29	113	205	745	4,212

*DLP/AITS