

SINCE 1984
Brilliant
STUDY CENTRE, PALA

KEAM 2025 DAY-1

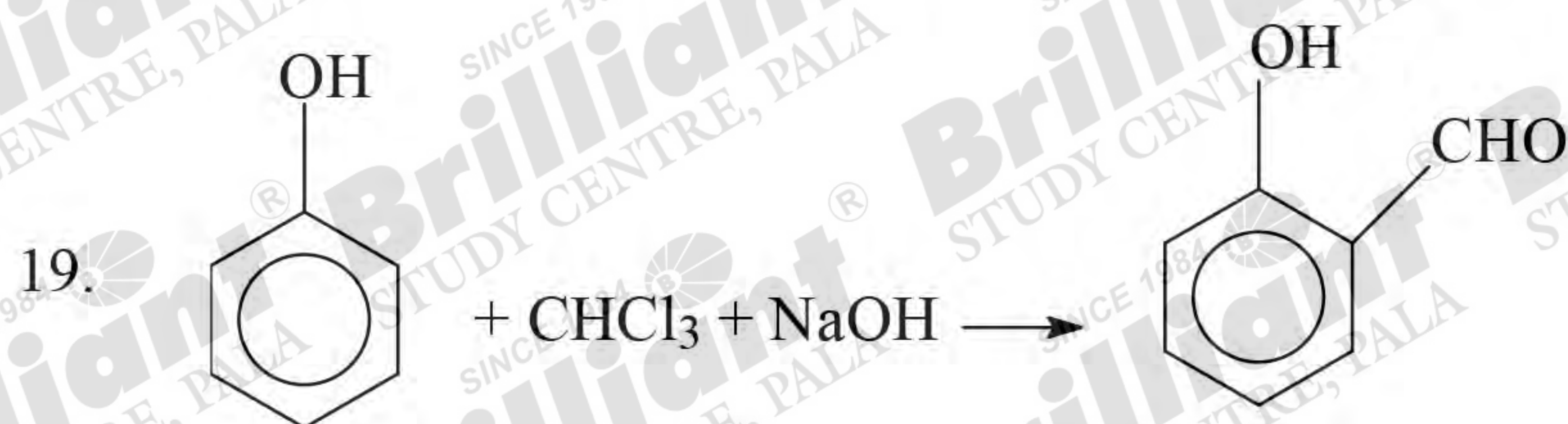


SCAN ME

VIDEO SOLUTION

MEMORY BASED QUESTIONS

- In which of the following compounds, the 'Mn' has +2 oxidation state
MnOF, MnO₂F, MgO₃F₂, MnO₃F, MnOF₂
- The disease is caused by deficiency of riboflavin?
- IUPAC name of phenyl isopentylether is
- Technique to separate chloroform & aniline?
- Which among the following has highest K_b value?
- Layer's test?
- Reimer tie
- When Toluene is treated with chromium oxide and acetic anhydride followed by hydrolysis give?
- Which among the following act as lewis acid?
A) AlCl₃ B) NH₃ C) OH⁻ D) H₂O
- Find pH of solution If [H⁺] = 2 x 10⁻⁴ mol/L
- Arrange then in the order of conductivity Na, Ag, Fe, Cu
- Order of dipole moment?
NH₃, NF₃, H₂S, CHCl₂
- Find the rate constant at 310K if initial concentration is 0.72 molL⁻¹ and final concentration is 0.72mol L⁻¹ and final concentration is 1.44 mol L⁻¹ at 310K at 10 minutes?
- Which among the following has highest molar elevation constant?
A) CHCl₃ B) CCl₄ C) CH₃COOH
- Among the following which on in incorrect
BrF₅ → Trigonal bipyramid
SF₄ → See saw
NH₃ → pyramidal
XeF₄ → square planer
- Formula of lanthanoids with sulphur?
- Common oxidation state of Cv
- If the half life of d is 1500 years and B is 2000 years what is the mean life time?



what is the name of above reaction?

- Least bond enthalpy
C = C, C = O, C ≡ N, C = N
- Incorrect statement
a) catalyst catalyses spontaneous reaction
b) catalyst catalyses non - spontanetuous reaction
c) Do not changes ΔG
d) Do not change
- Order of SN₂ reaction
2 - methyl 2 - bromo butene
2 - bromo butene
1 - bromo butane

23. Find molality if $d = 186\text{g/mol}$, $M_b = 120\text{g}$ molarity = 3M
24. If λ is the wavelength of electronegative radiation then the debrogle wavelength of its photon?
25. Number of ' σ ' and ' π ' bond in 3 methyl but - 1- ene?
26. Initial concentration of a reaction is 1.68×10^{-2} and after 10 minutes concentration becomes 0.84×10^{-2} . Then the rate of concentration in minutes?
27. Which of the following is set of neutral oxides?
a) Al_2O_3 , Cl_2O_7 , b) N_2O , CO
28. Fehling's solution is a mixture of
29. What is the phenomenon explained by wave nature of electromagnetic radiation
30. Find ΔG° at 293K given $K_p = 10^{-30}$, $2.303RT = 5.7\text{kJ/mol}$ for $3/2\text{O}_2 \rightarrow \text{O}_3$

If n number of cells each having emf E are joined in parallel. Then the effective emf is

In carnot engine efficiency is dependent on

- A) T_1 B) T_2
C) Nature of the engine

Which of the following statement is true?

- A) Saturation current depends on intensity
B) Saturation current does not depend on intensity
C) K.E depends on intensity
D) Photocurrent depends on frequency

After collision the two particles move together, then the collision is

Number of degrees of freedom for monoatomic gas molecules is

The ratio of angular speed of minute hand to second hand of a watch is

Brewster's angle i_B should lie between

Find the resistance required be connected to a galvanometer of resistance 100Ω with a full scale deflection of 1mA into a voltmeter of range 1V .

Body projected upwards with times of ascent t_1 and time of descent t_2 without air resistance. What is the relation between t_1 and t_2 ?

Relation between drift velocity and electric field is

The inward electric flux through a closed surface is 6×10^{-5} and outward flux is 3×10^{-5} . Then the total charge enclosed.

$M^0 L^0 T^{-1}$ is the dimension of -----

How can we decrease the effective capacitance of a parallel plate capacitor

What is the minimum wavelength of excite hydrogen?

Wave nature of light can be used to explain

In Young's double slit experiment, when bond width double, then $\lambda = ?$

- * Tension of a rope when a man of mass m climb up or down with a velocity acceleration $a < g$
- * The fundamental frequency of a string of length l is n . The string is cut into 3 parts l_1 , l_2 and l_3 each having fundamental frequency n_1 , n_2 and n_3 . Then n is

A) $n = \frac{1}{n_1} + \frac{1}{n_2} + \frac{1}{n_3}$

C) $n = \frac{1}{\sqrt{n_1}} + \frac{1}{\sqrt{n_2}} + \frac{1}{\sqrt{n_3}}$

B) $n = n_1 n_2 n_3$

D) $\frac{1}{n} = \frac{1}{n_1} + \frac{1}{n_2} + \frac{1}{n_3}$
- * Work done on splitting a spherical drop to 8 droplets
- * De Broglie wavelength of a quantum photon having energy E
- * A liquid of density d is moving down in a vessel of height h with an acceleration ($a < g$). Then the pressure at the bottom is

1) hdg

2) $hd(g - a)$

3) $hd(g + a)$

4) $hd \frac{g}{a}$

5) $hd \frac{a}{g}$
- * Two pendulum of time period T and $\frac{5T}{2}$. They start vibrating at mean position at the same time. What is the phase difference between when larger pendulum complete / oscillation?
- * A solid sphere, hollow sphere and solid cylinder starts sliding from a inclined plane without rolling. Then the ratio of time taken by them to reach the ground.
- * A body of mass 0.8kg moves with velocity $V = 2x^2 + 2\text{m/s}$. What is the work done during its motion from $x = 0$ to $x = 2\text{m}$?
- * If $x = -0.5$, What is μ_r and nature of material
- * A cylindrical vessel contains 16kg at 1 atm . A certain amount of substance is taken out so that pressure becomes 0.7 atm . Find the amount taken out? (in kg)
- * Which among the following is incorrect

1) Δu is cyclic process $= 0$

2) Δu in cyclic process $\neq 0$

3) Internal energy depends on initial and final state only

4) Internal energy does not depend on the initial and final state
- * What is the following, will not change with medium?

Equilateral triangle with each side with resistance R . Then effective resistance about a side

Electrostatic force is maximum when a charge Q split into

If frequency of cyclotron is doubled, radius becomes
- * $t_{1/2}(1) = 1500\text{ years}$, $t_{1/2}(2) = 1200\text{ years}$. What is the ratio of mean lives?
- * Relation between the speeds of X-ray, Gamma ray and U.V ray when they travel in vacuum.
- * A planet A revolves around the sun with time period 27 times that of the planet B. The planet A is x times distance of B from sun. The value of x is

If $V = 250 \text{ V}$, $F = 50\text{Hz}$, $R = 5\text{k}\Omega$ and $r = 10$ connected in each resistor peak value of I ?

4.3×10^{-5} and 2.7×10^{-6} sum of number of significant figures

If dig a mine on 3 km depth. What is the acceleration due to gravity and pressure?

Speed of x-rays, γ -rays and UV rays in the order

The wavelength of any electromagnetic radiation, the de-Broglie wavelength of its (photon) is

In a circuit, the capacitance C is connected. The effective capacitance of the circuit can be reduced by

Solid cylinder, solid sphere, ring, disc sliding without rolling which one has maximum acceleration.

$G = 100\Omega$, 1 mA current to a voltmeter of 20V, R should be

A bell of density $\frac{d}{2}$ falling through liquid at h height of liquid column, pressure = ?

Work done by 0.2kg body when velocity changes from 2 m/s to 4 m/s.

Proportionality of V_d to E if Ohm's law is obeyed

Radiation emits a frequency of 1500 kHz then find the wavelength?

$m_1 = 1 \text{ kg}$, $m_2 = 2\text{kg}$ $a_1 = 2\text{m/s}^2$, $a_2 = 3 \text{ m/s}^2$ is moving towards each other (frictionless) surface. Then what is the acceleration of the centre of mass

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Velocity $\mathbf{v} = 3\mathbf{i} + 3 + \mathbf{j}$. Find the acceleration $\mathbf{a} =$

Find the value of Z^4 if $Z = 1 + \frac{1}{i}$

If A is a 3×3 matrix and $|B| = |3A|$ and $|A| = 5$, then find $\frac{|\text{adj } B|}{|A|}$

If $a_1 \times a_2 \times a_3 \times a_4 \times a_5 = 64$ and $a_1 \times a_2 \times a_3 = 32$, then find common ratio of the sequence

If $5 \sin^{-1} \alpha + 3 \cos^{-1} \alpha = \pi$, then $\alpha =$

If $x + z = 2y$ and $y = \frac{\pi}{4}$. What is $\tan x \cdot \tan y \cdot \tan z$?

What is the value of n when $t_n = \frac{n(n+6)}{n+4}$ and $t_n = 5$

The product of first five terms of a GP is 32. What is the 3rd term?

If $\begin{bmatrix} 8-k & -2 \\ 2 & 6-k \end{bmatrix}$ is singular, find k?

If a G.P $a_1 \times a_2 \times a_3 = 64$ and $a_1 \times a_2 \times a_3 \times a_4 \times a_5 = 32$. Find r?

If $\cot^{-1} \left(\sqrt{\frac{1-x}{1+x}} \right)$ then $\sec^2 \theta$

In a G.P 1st term and 3rd term are 4 and 8 then 21st term is

$2x^3 - 3x^2 - 36x + 28$ is increasing in

$\begin{bmatrix} 4 & 9 \\ 12 & -3 \\ 8 & -2 \end{bmatrix} \begin{bmatrix} 7 \\ 9 \end{bmatrix} = \begin{bmatrix} \alpha \\ \beta \\ \gamma \end{bmatrix}$ find $\alpha + \beta$

Find the vertex of the parabola $4y = x^2 - 6x + 17$ consider $Z = \frac{2-i}{\alpha+i}$ and

If consider $Z = \frac{2-i}{\alpha+i}$ and

If $4 \operatorname{Re}(Z) = 3 \operatorname{Im}(\bar{Z})$ find α

$\int e^x (x^2 - 2) \times \cos(e^x (x^2 - 2x)) dx =$

MATHS

$Z + \bar{Z} = 4, Z - \bar{Z} = 6$ then $|\bar{Z}|^2$

Find the eccentricity of the hyperbola $\frac{(2x-6)^2}{2} - \frac{(4y+7)^2}{16} = 1$

Find the focus of the parabola $x^2 - 4x + 8y + 4 = 0$

$|\vec{a} + \vec{b}| = \frac{\sqrt{14}}{2}$ where $\vec{a}$ and $\vec{b}$ are unit vectors then find the value of $|\vec{a} + \vec{b}|^2 - |\vec{a} - \vec{b}|^2$ is equal to

$\int \frac{(\sin^{-1} x)}{\sqrt{1-x^2}} dx = \frac{(\sin)^2}{2}$

$\int_{\frac{\pi}{10}}^{\frac{2\pi}{5}} \frac{\cot^3 x}{1 + \cot^3 x} dx =$

$\tan 15^\circ + \tan 45^\circ =$

If $\sin \alpha = \frac{12}{13}, \frac{\pi}{2} \leq \alpha \leq \frac{3\pi}{2}$ find $\tan \alpha$

If m and n are the length of major and minor axes of an ellipse where $m^2 - n^2 = 45$ and $e = \frac{\sqrt{5}}{3}$ find the length of major axis

If $f(x) = \frac{x^3}{x^3 + (x-3)^3}$ then $f(x) + f(x-3) =$

If $|\vec{a}| = 12$, Projection of $\vec{a}$ on $\vec{b}$ $6\sqrt{3}$ then angle between $\vec{a}$ and $\vec{b}$

Number of 5 digits number that can be formed by using all the digits 0, 2, 4, 6, 8

$P(A/B) = 0.6, P(A/B') = 0.3, P(B) = 0.7$ then $P(A) =$

$$\lim_{x \rightarrow 0} \frac{\sqrt{\cos^2 x + 3} - \sqrt{\cos^2 x + \sin x + 3}}{x}$$

$$\frac{x-3}{1} = \frac{y+1}{-1} = \frac{z+3}{-1} \text{ and } \frac{y+2}{-2} = \frac{z-3}{-2} \text{ angle between the line}$$

Equation of circle touching x - axis at (9, 0) and the line y = 14

$$n(A \times B) = 160, n(B \times C) = 80, n(A \times C) = 210 \text{ then } n(A)$$

$Ax + by + C = 0$ is a line passing through $(-10, 7)$ and perpendicular to line $11x - 8y - 16 = 0$ then $C =$

$$\sum_{k=0}^5 {}^{10}C_{2k} = \alpha \text{ and } \sum_{k=0}^4 {}^{10}C_{2k+1} = \beta \text{ then } \alpha - \beta$$

$$\frac{1}{2} [f(x+y) + f(y-x) - f(x) \times f(y)]$$

$$F(x) = |\sin 3x| - |\cos 3x|, \frac{\pi}{6} \leq x \leq \frac{\pi}{3} \text{ then } f' \left(\frac{\pi}{4} \right)$$

If $f(x) = \sqrt{x-3} + 4\sqrt{5-x}$ find domain of f ?

If α, β, γ are direction angles of a line and $\cos \alpha + \cos \beta + \cos \gamma = \frac{5}{3}$, then . Find

$$\cos \alpha \cos \beta + \cos \beta \cos \gamma + \cos \alpha \cos \gamma = ?$$

If $h(x) = f'(\sqrt{g(x)})$, $f'(3) = 3$, $g'(3) = 6$, $g(3) = 9$ find $g'(3) = 6$, $g(3) = 9$

If $-5 < x \leq -1$ then $-21 \leq 5x + 4 \leq b$ find b ?

Area of a hemisphere is increasing at ratio $8\text{cm}^2/\text{sec}$. Find ratio of volume increase when $r = 5\text{cm}$

$f(x) = \log 5x$, $g(x) = \cos x$ find domain of $\text{fog}(x)$

$\sin x + \sin y = a$, $\cos x + \cos y = b$ $x + y = \frac{2\pi}{3}$, $\frac{a}{b} =$

$\int \frac{2x^2 + 4x + 3}{x^2 + x + 1} dx =$

$\int \frac{3^{2x}}{3^{2x} + 1} dx =$

S.D of $-3, 0, 3, 8$

If $\vec{a} \parallel \vec{b}$, $\vec{a} \cdot \vec{b} = \frac{49}{2}$, $|\vec{a}| = 7$ find $|\vec{b}|$?

In an equilateral triangle ABC, the coordinates of vertex A are $(-2, 2)$ and the equation of side BC is $x + y = 6$ find the length of side of ΔABC

$\int e^x \sec x (\tan x + 1) dx$

Unbiased die is tossed till S is obtained. If X : no of times tossed. Find $\frac{P(X=2)}{P(X=5)}$

If $f(x) = \frac{3^x}{3^x + \sqrt{3}}$ then $f(x) + f(1-x) =$

If $f(x) = \begin{cases} \frac{\tan(\alpha x) + (\beta + 1) \tan x}{x}, & x \neq 0 \\ 5, & x = 0 \end{cases}$ is continuous at $x = 0$, then $\alpha + \beta =$

A bag contains 6 white and 4 red balls 3 white balls are taken without replacement then 3 red balls are taken without replacement. What is its probability