Sri Chaitanya Educational Institutions | Infinity Learn

39 Years of Excellence 1986-2024

2025 JEE 23TH Shift -1 Questions

HISTORY CREATED

40 YEARS OF ACADEMIC EXCELLENCE

ASIS'S GREATEST EDUCATION BRAND IN IIT-JEE, NEET & OLYMPIADS

THE PERFECT HAT-TRICK WITH ALL-INDIA RANK 1

JEE MAIN

S VENKAT KOUNDINYA
H.T.No. 230310124339
CLASSROOM STUDENT
FROM GRADE I -XII

NEET

B VARUN CHAKRAVARTHI
H.T.No. 1205120175
CLASSROOM STUDENT
FROM GRADE VI -XII

JEE ADVANCED

VAVILALA CHIDVILAS
H.T.No. 236165088
CLASSROOM STUDENT
FROM GRADE VI -XII

040 66 06 06 06 | Study With The Best, Rise Above The Rest. | www.srichaitanya.net

JEE Main – 23rd January – 2025 (Shift-1)

[Memory Based Questions]

PHYSICS

1. If angles of projection for two projectiles are 30° and 60° then the ratio of velocities at maximum height is? (Assume initial velocities of both projectiles is same).

   a) $\sqrt{3}$ b) 2 c) $1/\sqrt{3}$ d) 1/2

   Ans: (a)

2. **Statement 1:** Hot water moves faster than cold water.

   Statement 2: Soap water have higher surface tension than fresh water.

   a) Statement 1 is false and statement 2 is true

   b) Both statement 1 and statement 2 are true

   c) Both statement 1 and statement 2 are false

   d) Statement 1 is true and statement 2 is false

   Ans: (d)

3. Electric flux ϕ is related with linear charge density λ. and surface charge density σ as $\phi = \alpha\lambda + \beta\sigma$. where α, and β are of appropriate dimension of $(\frac{\beta}{\alpha})$ is

   a) Area b) Displacement c) Electric field d) Velocity

   Ans: (b)

4. Two particles are located at equal distance from origin. The position vectors of those are represented by $\bar{A} = 2\hat{\imath} + 3n\hat{\jmath} + 2\hat{k}$ and $\bar{B} = 2\hat{\imath} - 2\hat{\jmath} + 4p\hat{k}$ respectively. If both the vectors are at right angle to each other, the value of n^{-1} is.

   a) 4 b) 5 c) 3 d) 2

   Ans: (c)

5. $F = x^2yi + y^2j$, on line $x + y = 10$. work done from $(0, 0)$ to $(4, 2)$.

   a) 152 b) 162 c) 150 d) 160

   Ans: (a)

JEE Main 2025 Paper Analysis (23rd Jan) and Difficulty Level Weight-age

6. A positive ion A and a negative ion B have charges 6.67×10^{-19}C and 9.6×10^{-10}C and mass 19.2×10^{-27} kg and 9×10^{-27} kg respectively at an instant, the ions are separated by a certain distance r. At that instant the ratio of the magnitudes of electrostatic force to gravitational force $P \times 10^{43}$, where value of P is

Take $\frac{1}{4\pi\varepsilon_0} = 9 \times 10^9 \text{Wm}^2\text{C}^{-1}$ and universal gravitational constant as $6.67 \times 10^{-11}\text{Nm}^{-2}\text{ kg}^{-2}$.

Ans: 50

7. A gas at 0°C, is reduced to 1/4 of its volume adiabatically. Change in temperature is k. $(\gamma = 3/2)$.

a) 546 b) 273 c) 100 d) 200

Ans: (b)

8. $x(t) = A\sin t + B\cos^2 t + Ct^2 + D$ Dimension of $\frac{ABC}{D} =$

a) $\text{L}^2\text{ T}^{-2}$ b) L^2 c) L^3T^{-2} d) L

Ans: (a)

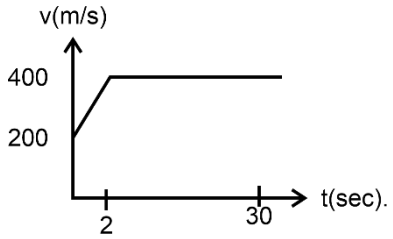
9. Given a convex lense of refractive index μ_2 in a liquid of refractive index $\mu_1, \mu_1 < \mu_2$ having radii of curvature R_1R_2 the R_2 surface a silver polished. Where should an object be placed on the optic axis so that the real and inverted image is formed at the same place.

a) $\frac{(\mu_2+\mu_1)|R_1|}{(\mu_2-\mu_1)}$ b) $\frac{\mu_1|R_1|\cdot|R_2|}{\mu_2(|R_1|+|R_1|-\mu_1|R_2|}$

c) $\frac{\mu_1|R_1||R_2|}{\mu_2(2|R_1|+|R_2|)-\mu_1\sqrt{|R_1|\cdot R_2|}}$ d) $\frac{\mu_1|R_1|\cdot|R_2|}{\mu_2(|R_1|+|R_2|)-\mu_1|R_1|)}$

Ans: (b)

10. From velocity v/s time graph find distance covered by aeroplane in 30.5 sec



a) 15 km b) 12 km c) 10 km d) 20 km

Ans: (b)

11. Infrared light of wavelength 900 nm used for muscle pain. Which of the following transition in H -atom can be used?

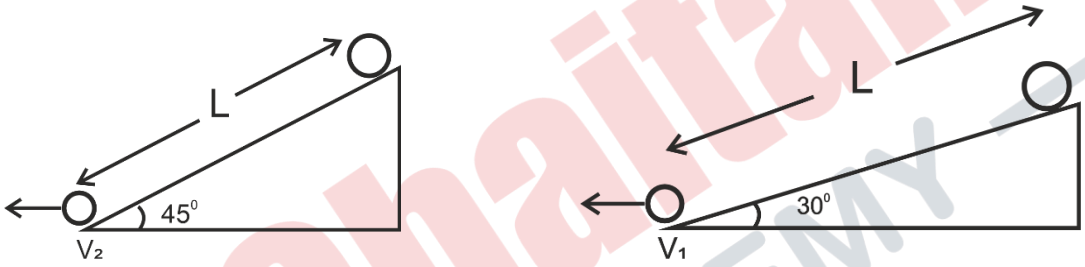
a) Lyman: $3 \rightarrow 1$ b) Balmer: $5 \rightarrow 2$ c) Paschen: $5 \rightarrow 3$ d) Paschen: $\infty \rightarrow 3$

Ans: (d)

12. Given mass $m = 10$gm. Density of water $= 10^3$ kg/m^3. Side length of cube$=$ 10 m/s^2. If the cube is pushed slightly into the water from equilibrium then time period of SHM $T = Y\pi \times 10^{-2}$ then find x

Ans: 2

13. The same solid sphere is rolled from rest from 2 inclined planes. Assume pure rolling. Find v_2/v_1



a) $2^{1/2}$ b) $2^{1/4}$ c) $2^{-1/2}$ d) 2

Ans: (b)

CHEMISTRY

1. Which of the following element doesn't lie on the same period?

   a) Osmium b) Iridium c) Palladium d) Platinum

   Ans: (c)

2. Which of the following can show fac-mer isomers?

   a) $Co[(en)_2Cl_2]$ b) $[Co(NH_3)_4Cl_2]$ c) $[Co(H_2O)_6]$ d) $[Co(NH_3)_3Cl_3]$

   Ans: (d)

3. Which of the following react with Hinsberg reagent?

   (A) Aniline (B) N,N-Dimethyl aniline
   (C) Methyl amine (D) $C_6H_5NHC_6H_5$

   a) A only b) A and C only c) A, C and D d) A and B only

   Ans: (c)

4. **Statement 1:** Fructose can give Tollens test even though it does not have aldehyde group.

   Statement 2: When reacted with base fructose can undergo rearrangement to produce aldehyde group.

   a) Statement 1 is correct but Statement 2 is incorrect.

   b) Both Statement 1 and Statement 2 are correct.

   c) Both Statement 1 and Statement 2 are incorrect.

   d) Statement 1 is incorrect but Statement 2 is correct.

   Ans: (b)

5. Which of the following pair of ions are same coloured?

   a) Ti^{4+}, V^{3+} b) Cr^{2+}, Cu^{2+} c) Cr^{3+}, Ni^{2+} d) Mn^{3+}, Fe^{2+}

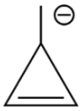
   Ans: (b)

6. If 2g phenol is allowed to react with Br_2/H_2O. How much Br_2 will be required to produce 2,4,6-tribromophenol (Rounded off to nearest integer).

   a) 8 b) 14 c) 10 d) 12

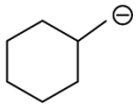
   Ans: (c)

7. Among the following the most stable Carbanion


a)


b)


c)


d)

Ans: (b)

8. $Co(NH_3)_xCl_3$ has 0.1 molal. 100% dissociation $\Delta T_f = 0.558$ ($k_f = 1.86$). Then formula of compound is

a) $[Co(NH_3)_4Cl_2]$ b) $[Co(NH_3)_2Cl_4]$ c) $[Co(NH_3)_5Cl\,]Cl_2$ d) $[Co(NH_3)_4Cl_2\,]Cl_2$

Ans: (c)

9. In estimation of Sulphur by Carius method, 160 gm of organic compound gives 466 gm of Barium sulphate. % of Sulphur in the organic compound is.

a) 60% b) 55% c) 40% d) 70%

Ans: (c)

10. 4 -nitrotoluene is treated with Br_2 to get compound P which is reduced with Sn and HCl to get Compound Q, then Q is diazotized and product is treated with phosphinic acid to get R is oxidised with alkaline $KMnO_4$ to get final product.

a) 2-Bromo 4 hydroxy Benzoic acid b) Benzoic acid
c) 4-Bromo Benzoic acid d) 3-Bromo Benzoic acid

Ans: (b)

11. If 10^{21} molecules are removed from x mg of $CO_2(g)$, then 2.4×10^{-3} moles are left. Calculate the value of x.

a) 156 b) 179 c) 187 d) 165

Ans: (b)

12. **Incorrect** statement among the following is

a) SO_2 acts as oxidizing agent but not reducing agent

b) NO_2 exists as dimer

c) PF_5 exists but NF_5 does not

d) PH_3 has lower proton affinity than NH_3

Ans: (a)

13. The d-electronic configuration of an octahedral Co (II) complex having magnetic moment of. 3.95 BM is :

a) $t_2g^5eg^2$ b) $eg^4t^3_2$ c) $t_2g^3eg^\circ$ d) $t_2g^6eg^1$

Ans: (a)

14. Match the column appropriately regarding thermodynamic process.

	Column I		Column II
(P)	When volume change is zero	(i)	$\Delta W = 0$
(Q)	When volume is constant	(ii)	$\Delta Q = 0$
(R)	When no heat is exchanged	(iii)	Isochoric
(S)	Work done by the gas is equal to heat given to the gas	(iv)	Isothermal

a) P(iv), Q(iii), R(i), S(ii) b) P(i), Q(iii), R(ii), S(iv)

c) P(ii), Q(iii), R(iv), S(i) d) P(ii), Q(iii), R(i), S(iv)

Ans: (b)

15. Consider the following $FeO^{2-}_4 \xrightarrow{2.0V} Fe^{3+} \xrightarrow{0.8V} Fe^{2+} \xrightarrow{-0.5V} Fe^0$.

Find $E^0_{FeO_4^{2-}/Fe^{2+}}$

a) 8 b) 2 c) 4 d) 6

Ans: (b)

16. Consider the given values :

$\Delta H = 55$ kJ mol^{-1}, $\Delta S = 175$ J mol^{-1} K^{-1}, $T = 25^\circ C$

Calculate the value of Gibbs free energy charge (ΔG) in $Jmol^{-1}$.

a) 1780 b) 2570 c) 1570 d) 2850

Ans: (d)

17. Given below are two statements :

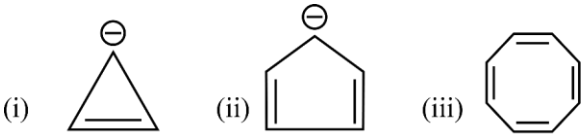
Statement-I : During Lassaigne's test, covalent compound is converted to ionic compound.

Statement-II : $Na_4[Fe(CN)_6]$ gives Prussian blue colour on reaction with $Fe_2(SO_4)_3$

a) S-I is correct, S-II is incorrect
b) S-I is incorrect, S-II is correct
c) Both S-I and S-II are correct
d) Both S-I and S-II are incorrect

Ans: (c)

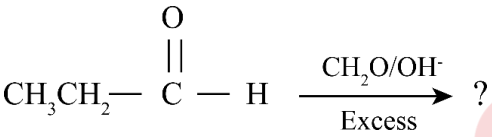
18. Correct order of stability

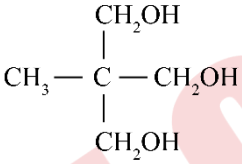
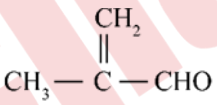
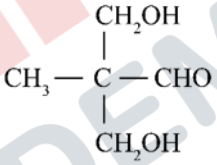
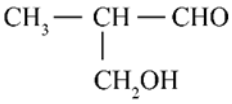


Anti-Aromatic Aromatic Non-Aromatic

a) (i) > (ii) > (iii) b) (ii) > (iii) > (i) c) (ii) > (i) > (iii) d) (iii) > (i) > (ii)

Ans: (b)

19. 

a) 
b) 
c) 
d) 

Ans: (a)

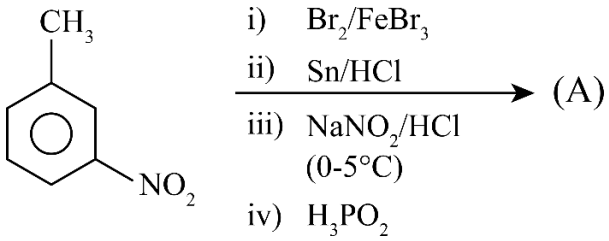
20.

Name Reaction	Product
a) Sandmeyer's	p) Cyano Benzene
b) Swarts	q) Ethyl Fluoride
c) Wurtz-Fittig	r) Ethyl Benzene
d) Finkelstein	s) Ethyl Iodide

a) a(p), b(q), c(r), d(s) b) a(q), b(r), c(p), d(r)
c) a(q), b(p), c(s), d(r) d) a(r), b(p), c(q), d(s)

Ans: (a)

21. Consider the following sequence of reactions and find the molecular mass of the final product (A) formed in $gmol^{-1}$.



a) 108 b) 216 c) 171 d) 186

Ans: (c)

22. Match the Column I with Column II and choose the correct option.

	Column I		Column II
A.	BF_3	(i)	Odd e⁻species
B.	CCl_4, CO_2	(ii)	Expanded octet
C.	PCl_5, BrF_5	(iii)	Complete octet
D.	NO	(iv)	Electron deficient

a) A - (iii), B - (iv), C - (i), D - (ii) b) A - (iv), B - (ii), C - (iii), D - (i)

c) A - (iv), B - (iii), C - (ii), D - (i) d) A - (i), B - (ii), C - (iii), D - (iv)

Ans: (c)

MATHEMATICS

1. Find the area bounded between two curves $x^2 + y^2 = 25$ and $y = |x - 1|$.

   a) $\frac{25\pi}{4} + \frac{1}{2}$ b) $\frac{25\pi}{4} - \frac{1}{3}$ c) $\frac{21\pi}{3} - \frac{1}{5}$ d) $\frac{7\pi}{3} - \frac{2}{5}$

   Ans: (a)

2. The value of $a = 3$, the sum of first 4 terms is equal to the one fifth of sum of next 4 terms in A.P. then find the sum of first 20 terms?

   a) -1080 b) -2016 c) 512 d) 128

   Ans: (a)

3. 2 biased dice are rolled. Die one has 1 on 2 faces, 2 on 2 faces, 3 and 4 on other faces. Die two has 2 on 2 faces, 4 on 2 faces, 1 and 3 on other faces. Then the probability of getting sum as 4 or 5 is

   a) 0.25 b) 0.5 c) 1.2 d) 2.5

   Ans: (b)

4. Let R: $A \to A$ be a relation where A = {1, 2, 3, 4}. Find the minimum number of elements added to the set to make it equivalence relation.

   a) 7 b) 9 c) 3 d) 5

   Ans: (a)

5. The total number of ways the word 'DAUGHTER' can be arranged so that all vowels doesn't occur together.

   a) 36000 b) 37000 c) 35000 d) 38000

   Ans: (a)

6. A quadratic equation $a(b - c)x^2 + b(c - a)x + c(a - b) = 0$ has equal roots, where $a + c = 15$ and $b = \frac{36}{5}$ then find $a^2 + c^2$ is equal to

   a) 117 b) 216 c) 512 d) 120

   Ans: (a)

7. Sum of rational terms in expansion $(1 + 2^{\frac{1}{3}} + 3^{\frac{1}{2}})^6$ is _____.

   a) 172 b) 215 c) 156 d) 160

   Ans: (a)

JEE Main 2025 Paper Analysis (23rd Jan) and Difficulty Level Weight-age

8. Let $f(x)$ be a continuous function at $x = 0$, where

$$f(x) = \begin{cases} \frac{2}{x}(\sin(k_1+1)x + \sin(k_2+x)); & x < 0 \\ \frac{2}{x}(\log(\frac{k_1x+1}{k_2x+1})); & x > 0 \\ 4 & x = 0 \end{cases}$$

Then find $K_1^2 + K_2^2$.

a) 3 b) 5 c) 2 d) 7

Ans: (c)

9. Let $I(x) = \int \frac{dx}{(x-11)^{\frac{11}{13}}(x+15)^{\frac{15}{13}}}$. If $I(37) - I(24) = \frac{1}{4}(\frac{1}{b^{1/3}} - \frac{1}{c^{1/3}})$ Then $3(b+c)$ is equal to

a) 37 b) 39 c) 21 d) 45

Ans: (b)

10. Area of the triangle with the vertices $P(5,4), Q(-2,4), R(a,b)$ is 35 square units. If orthocentre of this triangle is $O(2, \frac{14}{5})$ and centroid is C(c, d) then (c + 2d) is equal to

a) 3 b) 7/3 c) 2 d) 8/3

Ans: (a)

11. If $f(x) = \log x$ and $g(x) = \frac{x^4 - 2x^3 + 3x^2 - 2x + 2}{2x^2 - 2x + 1}$. Then find domain of $f(g(x))$.

a) (1, 2) b) $(-\infty, \infty)$ c) $(0, \infty)$ d) $(\infty, 1)$

Ans: (b)

12. Let a curve y = f(x) passes through the points (0, 5) and ($\log_e$ 2, k). If the curve satisfies the differential equation $2(3 + y)e^{2x}dx - (7 + e^{2x})dy = 0$. Then k is equal to

a) 4 b) 2 c) 5 d) 8

Ans: (d)

JEE Main 2025 Paper Analysis (23rd Jan) and Difficulty Level Weight-age

13. If A, B and $(\text{adj}(A^{-1}) + \text{adj}(B^{-1}))$ are non - singular matrices of same order then the inverse of $A(\text{adj}(A^{-1}) + \text{adj}(B^{-1}))^{-1} B$ is equal to

a) $\frac{1}{|AB|}(\text{adj}\, B + \text{adj}\, A)$ b) $AB^{-1} + A^{-1}B$

c) $\text{adj}\, B^{-1} + \text{adj}\, A^{-1}$ d) $\frac{AB^{-1}}{|A|} + \frac{BA^{-1}}{|B|}$

Ans: (a)

14. Marks obtained by all the students of class 12th are in a frequency distribution with classes of equal width. Let the median of the group data be 14 with median class interval 12-18 and the median class frequency is 12. If the number of students who secures marks below 12 is 18 then the total number of students is

a) 48 b) 52 c) 44 d) 40

Ans: (c)

15. If the system of equation

$(\lambda - 1)x + (\lambda - 4)y + \lambda Z = 5$

$(\lambda x + (\lambda - 1)y + (\lambda - 4)Z = 7$

$(\lambda + 1)x + (\lambda + 2)y - (\lambda + 2)z = 9$

Has infinitly many solutions then $\lambda^2 + \lambda$ is equal to

a) 20 b) 10 c) 12 d) 6

Ans: (c)

16. If $\frac{\pi}{2} \leq x \leq \frac{3\pi}{4}$. Then $\cos^{-1}\left[\frac{12}{13}\cos x + \frac{5}{13}\sin x\right]$ is equal to

a) $x + \tan^{-1}\frac{5}{12}$ b) $x - \tan^{-1}\frac{1}{3}$ c) $x - \tan^{-1}\frac{5}{12}$ d) $x + \tan^{-1}\frac{4}{5}$

Ans: (c)

17. Value of $\sin 70°(\cot 10° \cot 70° - 1)$ is

a) 3 b) 5 c) 7 d) 1

Ans: (d)

JEE Main 2025 Paper Analysis (23rd Jan) and Difficulty Level Weight-age

Telegram: Contact @InfinityLearnJEE

*****