



CHEMISTRY

BOOKS - NTA MOCK TESTS

NTA JEE MOCK TEST 99

Chemistry

1. Select the correct plot of radial probability function ($4\pi r^2 R^2$) for 2s - orbital.

A. 

B. 

C. 

D. 

Answer: B



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2. 1 g of a complex $[Cr(H_2O)_5Cl]Cl_2 \cdot H_2O$ (mol. Wt. 266.5) was passed through a cation exchanger to produce HCl. The acid liberated was diluted to 1 litre. The normality of this acid solution is

A. $5 \times 10^{-3} N$

B. $7.5 \times 10^{-3} N$

C. $7.5 \times 10^{-2} N$

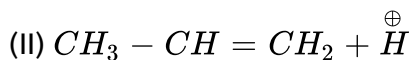
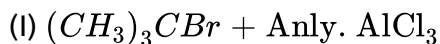
D. $7.5 \times 10^{-1} N$

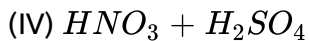
Answer: B



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3. Which of the following reactions would generate an electrophile?





A. I, II and IV

B. I, II and III

C. I, II, III and IV

D. II, III and IV

Answer: A



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4. Match list I with list II and select this correct answer using the codes given below this lists.

	List I (Type of glass)	List II (Property/use)
(p)	Borosilicate glass	1. Very high transparency
(q)	Calcium-alkali silicate glass	2. Cheap laboratory glass wares
(r)	Lead glass	3. Optical glass
(s)	Soda glass	4. Domestic glass for windows
		5. Low coefficient of expansion

A. (p) - (2), (q) - 5, (r) - 3, (s) - 4

B. (p) - 2, (q) - 1, (r) - 5, (s) - 4

C. (p) - 5, (q) - 2, (r) - 1, (s) - 3

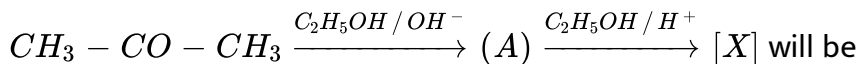
D. (p) - 5, (q) - 4, (r) - 3, (s) - 2

Answer: D



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5. In the reaction sequence



A. 

B. 

C. 

D. 

Answer: C

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6. The equilibrium $NH_4HS(s) \rightleftharpoons NH_3(g) + H_2S(g)$, is followed to set up at $127^\circ C$ in a closed vessel. The total pressure at equilibrium was 20 atm. The K_C for the reaction is

A. $0.092M^2$

B. $0.085M^2$

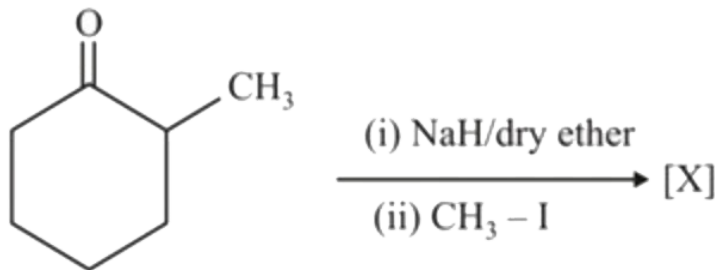
C. $3.045M^2$

D. None of these

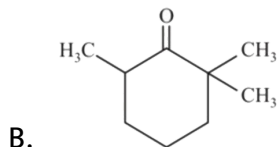
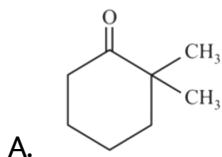
Answer: A

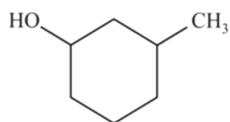
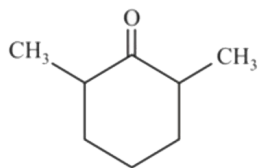
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7. In the given reaction



[X] will be

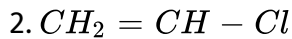
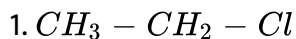




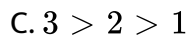
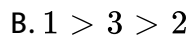
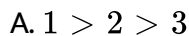
Answer: C

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8. Consider the following three halides:



Arrange C-Cl bond length of these compounds in decreasing order



D. $2 > 3 > 1$

Answer: A

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9. Certain organic compound on combustion produces three gaseous oxides A, B and C. A and C turned lime water milky, B turned anhydrous $CuSO_4$ blue and C turned $K_2Cr_2O_7$ solution green. The elements present in organic compounds are

A. C, N, O

B. C, H, S

C. C, H only

D. C, S only

Answer: B

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10. Enthalpy is equal to

A. $T^2 \left[\frac{\partial(G/T)}{\partial tT} \right]_P$

B. $-T^2 \left[\frac{\partial(G/T)}{\partial T} \right]_V$

C. $T^2 \left[\frac{\partial(G/T)}{\partial T} \right]_V$

D. $-T^2 \left[\frac{\partial(G/T)}{\partial T} \right]_V$

Answer: B



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11. select correct absorption isobars for chemisorption and physisorption respectively ,

(where $\frac{x}{m}$ = extent of adsorption , T = temperature)

A. 

B. 

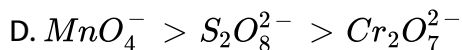
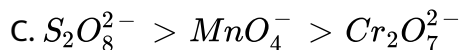
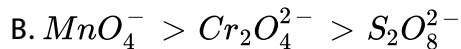
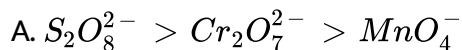
C. 

D. 

Answer: C

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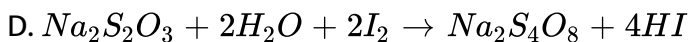
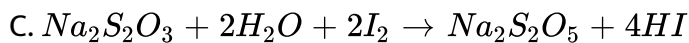
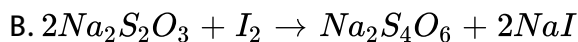
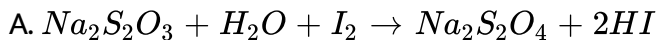
12. All the following species are strong oxidizing agents. Their strength as oxidizing agents in acidic solution is such that



Answer: C

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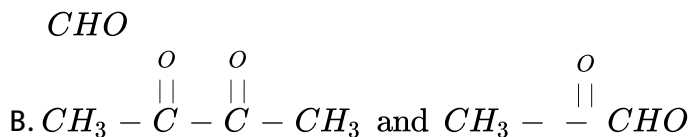
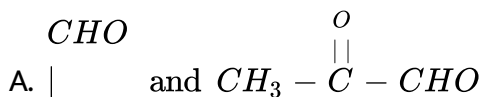
13. A solution of I_2 in aqueous KI on reaction with an aqueous solution of $Na_2S_2O_3$ gets decolourised. The reaction taking place here is

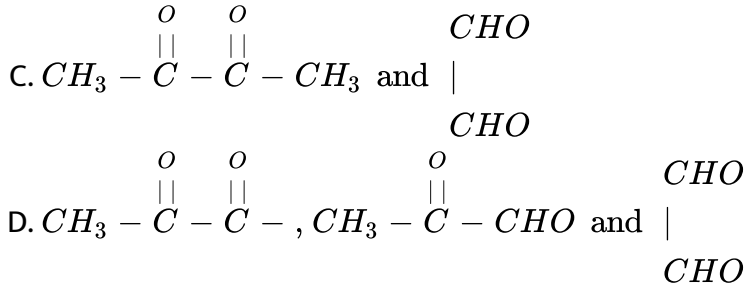


Answer: B

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14. O-xylene on ozonolysis will give:





Answer: D

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15. Match list I with list II and select the correct answer using the codes given below.



A. P - 2, Q - 1, R - 3, S - 5

B. P - 1, Q - 2, R - 3, S - 5

C. P - 2, Q - 1, R - 5, S - 4

D. P - 1, Q - 2, R - 5, S - 4

Answer: A



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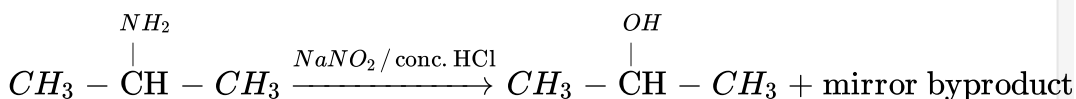
16. A sample of hydrogen was collected over water at $21^{\circ}C$ and 685 mm Hg. The volume of the container was 7.80 L. Calculate the mass of $H_2(g)$ collected (vapour pressure of water = 18.6 mm Hg at $21^{\circ}C$)

- A. 0.283 g
- B. 0.570g
- C. 0.589 g
- D. 7.14g

Answer: B

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17. Consider the following reaction



Minor by product (s) is/are

A. 2 - chloro propane

B. Propene

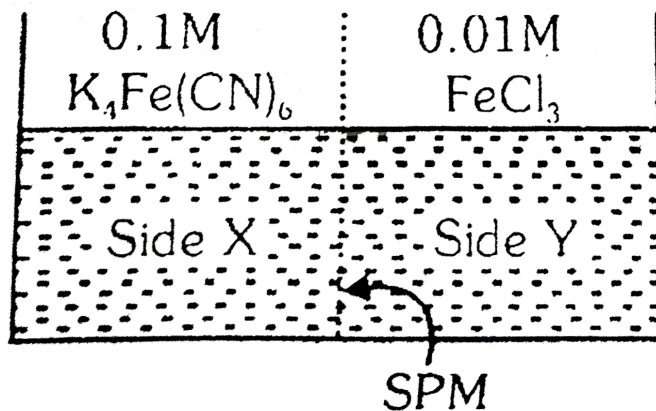
C. Isopropyl nitrite

D. All of these

Answer: D

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18. $FeCl_3$ on reaction with $K_4[Fe(CN)_6]$ in aqueous solution gives blue colour.



These are separated by a semipermeable membrane AB as shown. Due to osmosis there is:

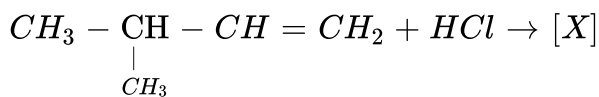
- A. blue colour formation in side X
- B. blue colour formation in side Y
- C. blue colour formation in both of the side X and Y
- D. no blue colour formation

Answer: D



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19. In the given reaction



Major product [X] will be

- A. 2 - chloro -3- methylbutane
- B. 1 - chloro -3- methylbutane

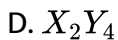
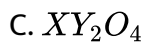
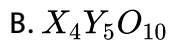
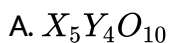
C. 2 - chloro -2- methylbutane

D. 2 - chloropentane

Answer: C

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20. In a cubic packed structure of mixed oxides , the lattice is made up of oxide ions one fifth of tetrahedral voids are occupied by cation of a while one half of the formula of the oxide is



Answer: B

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21. Diatomic molecule has a dipole moment of $1.2D$ If its bond 1.0\AA what fraction of an electronic charge exists on each atom ? .

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22. An unknown compound $AC_8H_{10}O_3$ on acetylation with CH_3COCl / Py forms acetyl derivative of A whose MW is 280. A on treat with CH_2N_2 gives methyl ether of B having MW 182. If the number of phenolic hydroxyls and alcoholic hydroxyls in the compound A are X and Y respectively. Find the sum of $X + Y$ here?

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23. Find out total number of compound (s) in which at least half of Cl^- are ionizable

$CrCl_3 \cdot 6NH_3$, $CrCl_3 \cdot 5NH_3$, $CrCl_3 \cdot 4NH_3$, $CrCl_3 \cdot 3NH_3$, $PtCl_4 \cdot 6NH_3$, $PtCl_4 \cdot 5NH_3$

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24. In a reaction, the time required to complete half of the reaction was found to increase 16 times when the initial concentration of the reactant was reduced to 1/4th. What is the order of the reaction?

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25. For a liquid the vapour pressure is given by $\log_{10} P = \frac{-400}{T} + 10$.

Vapour pressure of the liquid is $10^x mm$ Hg. The value of x will be-----

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