

CHEMISTRY

BOOKS - NTA MOCK TESTS

NTA TPC JEE MAIN TEST 67

Chemistry

1. Among the following, which is the correct order of decreasing $N-O$ bond length: NO_2^+ , NO_2^- , NO_3^-



Answer: B



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2. The successive ionization energies of four elements are given as follows (in eV):

Elements	I. E ₁	I. E ₂	I. E ₃	I. E ₄
P	18.6	28.9	2068	4109
Q	12.8	1026	3125	5619
R	2486	3816	5139	8516
S	16.9	22.6	28.8	3214

Choose the correct statement from the following.

- A. The stable oxidation state of P is +1.
- B. The oxide of Q is acidic in nature.
- C. Element S forms electron deficient compounds.
- D. R is an alkaline earth metal.

Answer: C



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3. Choose the correct option for the order of repulsion between the bonded and non-bonded electrons in a bonded molecule.

- A. Lone pair – lone pair gt bond pair – bond pair gt lone pair – bond pair
- B. Bond pair – bond pair gt lone pair – lone pair gt lone pair - bond pair
- C. Lone pair gt lone pair gt lone pair - bond pair gt bond pair – bond pair
- D. Bond pair – bond pair gt lone pair – bond pair gt lone pair – lone pair

Answer: C



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4. Incorrect match is :

A.

Name	Formula
Fluorspar	CaF_2

Name	Formula
Fluoroapatite	$3\text{Ca}_3(\text{PO}_4)_2 \cdot \text{CaF}_2$

B.

Name	Formula
Cryolite	Na_3AlF_6

C.

Name	Formula
Karnelite	$\text{KCl} \cdot \text{AlCl}_3 \cdot 6\text{H}_2\text{O}$

D.

Answer: D



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5. Which ion is responsible for the hardness in water?



Answer: A



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6. Number of ligand around the central metal in a complex of Co^{+3} when NH_3 is added in aqueous solution.

A. 3

B. 4

C. 5

D. 6

Answer: D



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7. Milk of lime is a suspension of?

A. $Ca(OH)_2$

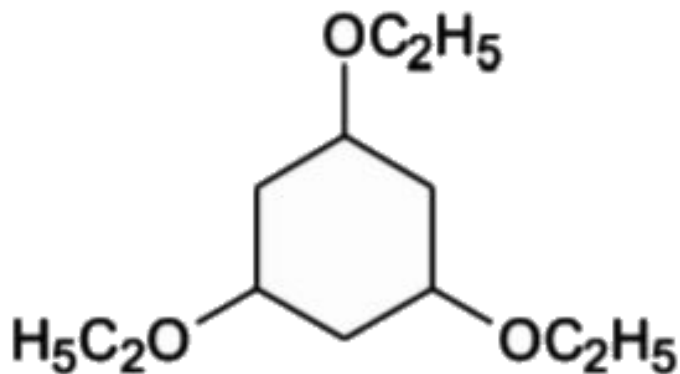
B. CaO

C. $CaCl_2$

D. $CaSO_4$

Answer: A

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8.

For complete reaction with one mole of the above compound, how many moles of HI are required?

A. Three

B. Nine

C. Six

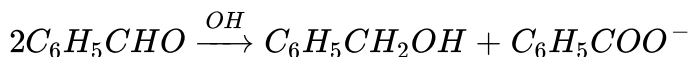
D. 12

Answer: C



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9. In the given Cannizzaro reaction, the slowest step is:



- A. The attack by OH on the carbonyl group.
- B. The transfer of the hydride to the carbonyl group.
- C. The exchange of protons can be slow steps.
- D. All the above.

Answer: B



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10. Which of the following reaction is appropriate for converting benzamide to aniline?

A. Hoffmann hypobromamide reaction

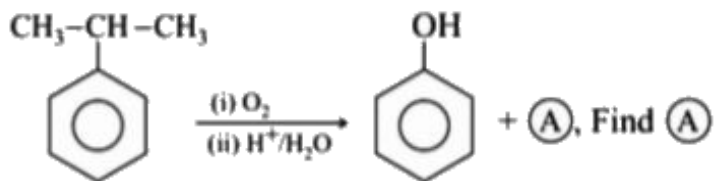
B. Carbyl amine reaction

C. Stephens reaction

D. Gabriels phthalimide synthesis

Answer: A

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A. CH_3CHO

B. CH_3COCH_3

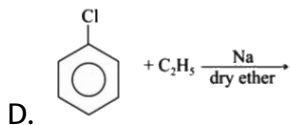
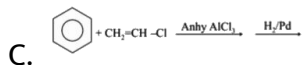
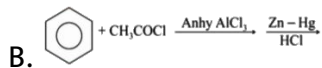
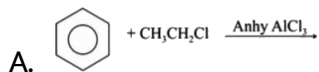
C. $\text{CH}_3\text{CH}_2\text{CHO}$

D. $\text{CH}_3\text{-}\overset{\text{O}}{\parallel}\text{C}\text{-C}_2\text{H}_5$

Answer: B

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12. Best method to prepare ethyl benzene is :

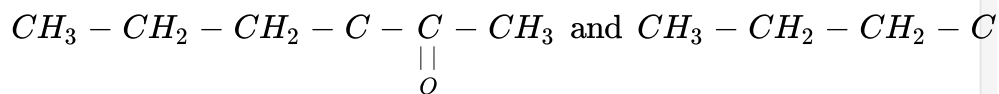


Answer: B

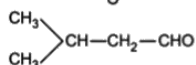
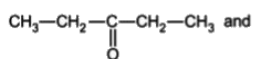
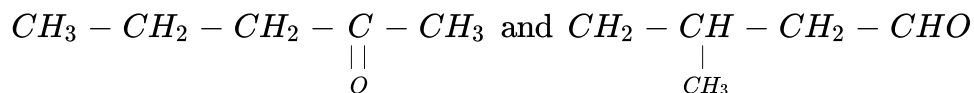
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13. The following pair of compounds which can be classified as positional isomers is

A.



B.



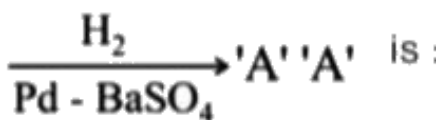
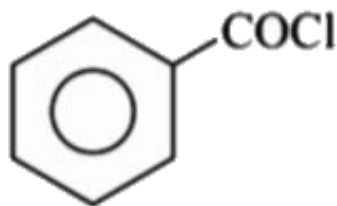
C.

D.



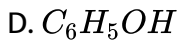
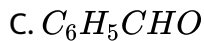
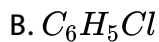
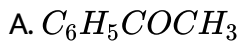
Answer: A

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14.

is :-



Answer: C

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15. The correct match of List - I with List - II will be:

List-I	List-II
(P) Penicillin	(a) Bactericidal
(Q) Ofloxacin	(b) Bacteriostatic
(R) Erythromycin	(c) Broad spectrum

A. P-c, Q - b, R - a

B. P - a, Q-C, R - b

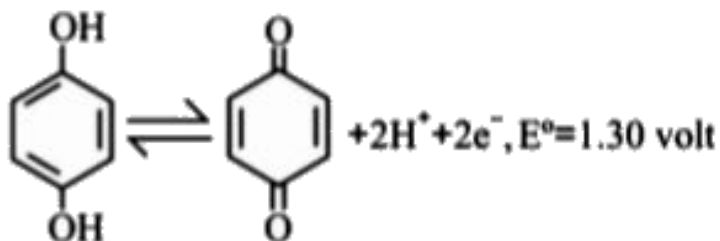
C. P - c, Q- a, R - b

D. P - a, Q - b, R - c

Answer: B

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16. The cell reaction involving quinhydrone electrode is :-



What will be the electrode potential at pH = 3

A. 1.48 V

B. 1.20 V

C. 1.10 V

D. 1.30 V

Answer: A



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17. What will be the degree of hydrolysis of 0.1 M solution of NaX? When a weak acid HX forms a salt NaX on reacting with NaOH and the dissociation constant of HX is 10^{-5}

A. 0.0001

B. 0.001

C. 1.0E-5

D. 0.0015

Answer: A



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18. How many mL of 0.1M aqueous solution of NaOH contains 4g NaOH :-

A. 1 mL

B. 100 mL

C. 1000 mL

D. 500 mL

Answer: C



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19. If the result of following calculation is written in the form of scientific notation as $A \times 10^Y$.

$$(63.2 \times 545 = A \times 10^Y)$$

The value of Y is

A. 1

B. 2

C. 3

D. 4

Answer: D

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20. The energy of a photon is given as $3.03 \times 10^{-19} J/\text{atom}$. The wavelength of the photon is :-

A. 6.56 nm

B. 65.6 nm

C. 0.656 nm

D. 656 nm

Answer: D

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21. Silver is extracted from its ore by cyanide process. In this process, silver passes into the solution with formation of complex 'X'. The

coordination number of silve ion in the complex 'X' is _____ .

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22. The number of correct trends in halogen gas, among the following will be:

i. $F_2 < Cl_2 < Br_2 < I_2$ (covalent radius)

ii. $F_2 < Cl_2 > Br_2 > I_2$ (Bond dissociation enthalpy)\text

iii. $F_2 > Cl_2 > Br_2 > I_2$ (reduction potential values)

iv. $F_2 < Cl_2 < Br_2 < I_2$ (density)

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23. For the quadratic equation $6x^2 + 11x + 3 = 0$, if α and β are the roots, then the value of $(6\alpha + 11)^2 + (6\beta + 11)^2$ is

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24. How many monosaccharides are examples of Aldose ?

Fructose, Ribulose, Erythrose, Ribose, Glucose

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25. How many of the following groups if substituted at o- and/or p-positions of chlorobenzene, increase its reactivity towards nucleophilic substitution?

$-CN$, $-CH_3$, $-NH(CH_3)$, $-COOH$, $-NO_2$, $-OCH_3$

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26. What is the average oxidation number of iron in Fe_3O_8 ? (upto 2 places after decimal)

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27. 25 g of an element contains 25×10^{24} atoms. If it crystallises in fcc structure having an edge length of 100 pm, the density of the element is _____ g cm^{-3} .

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28. The pressure is found to be 1 atm when 2 g of a gaseous substance A are introduced into an initially evacuated flask kept at 25°C . 3g of gaseous substance B are then added to the 2 g of A, and the pressure is now found to be 1.5 atm. Assuming ideal gas behavior, if the ratio of molecular weights, that is M_A / M_B is equal to $1 / X$, find the value of X.

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29. Find the value of $(x+y+z)$ of a hypothetical first order reaction, $A + B + C \rightarrow \text{Products}$, which has its rate law expressed as: Rate $= k[A]^x[B]^y[C]^z$.

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30. If 20 gm N_2 at 300 K is compressed reversibly and adiabatically from $20dm^3$ to $10 dm^3$

Given: $\left[(2)^{\frac{2}{5}} = 1.32 \right]$



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