



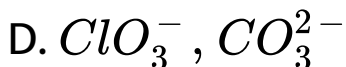
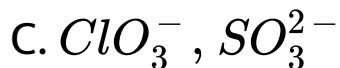
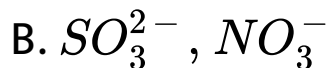
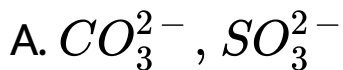
CHEMISTRY

BOOKS - NTA MOCK TESTS

NTA NEET SET 39

Chemistry

1. Which of the following pairs of ions are isoelectronic and isostructural-

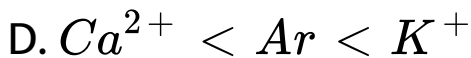
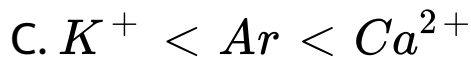
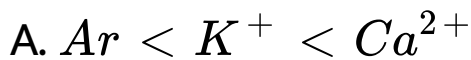


Answer: C



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2. The species Ar , K^+ and Ca^{2+} contain the same number of electrons. In which order do their radii increase ?



Answer: B



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3. The shape of XeO_2F_2 molecule is

A. Square planar

B. See - Saw

C. Tetrahedral

D. Trigonal bipyramidal

Answer: B



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4. Which ordering of compounds is according to the decreasing order of the oxidation state of nitrogen ?

A. HN_3 , NO , N_2NH_4Cl

B. HNO_3 , NO , NH_4Cl , N_2

C. NO , HNO_3 , NH_4Cl , N_2

D. NO_3^- , NH_4Cl , NO , N_2

Answer: A



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5. Which set of quantum numbers could represent an electron in a 5f orbital ?

A. $n = 5, l = 3, m = +4, s = +\frac{1}{2}$

B. $n = 5, l = 4, m = -4, s = -\frac{1}{2}$

C. $n = 5, l = 2, m = -1, s = +\frac{1}{2}$

D. $n = 5, l = 3, m = +1, s = +\frac{1}{2}$

Answer: D



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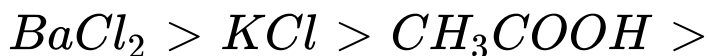
6. Which of the following statement is false ?

A. two sucrose solutions of same molality prepared in different solvents will have the same freezing point depression

B. the osmotic pressure of a solutions is given by the equation $\pi = iMRT$, where M is the molarity of the solution

C. Raoult's law states that the vapour pressure of a component over a solution is proportional to its mole fraction

D. the correct order of osmotic pressure
for 0.01 M aqueous solution of each
compound is



Sucrose

Answer: A



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7.3 gram of acetic acid is mixed in 250 mL of 0.1 M HCl. This mixture is now diluted to 500 mL. 20 mL of this solution is now taken in another container $\frac{1}{2}$ mL of 5M NaOH is added to this. Find the pH of this solution. ($pK_a = 4.74$)

A. 2.61

B. 4.52

C. 5.22

D. 8.78

Answer: C



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8. The rate equation for the reaction

$2A + B \rightarrow C$ is found to be: $rate = k[A][B]$.

The correct statement in relation of this reaction is that

A. value of k is independent of the initial concentrations of A and B

B. rate of formation of C is twice the rate of disappearance of A

C. unit of k must be s^{-1}

D. $t_{1/2}$ is a constant

Answer: A



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9. For $Br_2(l)$ Enthalpy of atomisation = $x(kJ) / (mol)$, Bond dissociation enthalpy of bromine = $y(kJ) / (mol)$, then

A. is $x < y$

B. is $x > y$

C. does not exist

D. is $x = 7y$

Answer: B



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10. Which of the following exhibits the greatest freezing point lowering per mole of solute ?

A. 0.01 m NaCl

B. 0.1 m NaCl

C. 0.01 m C_2H_5OH

D. 0.1 m C_2H_5OH

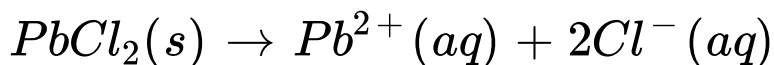
Answer: B



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11. The K_{sp} for the following dissociation is

$$1.6 \times 10^{-5}$$



Which of the following choices is correct for a mixture of 300 mL 0.134 M $Pb(NO_3)_2$ and 100 mL 0.4 M NaCl?

A. $Q < K_{sp}$

B. $Q > K_{sp}$

C. $Q = K_{sp}$

D. Not enough data provided

Answer: B



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12. Bromine water reacts with SO_2 to form

A. H_2O and HBr

B. HBr and S

C. H_2SO_4 and HBr

D. S and H_2O

Answer: C



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13. How many primary amines are possible for the formula $C_4H_{11}N$

A. 1

B. 3

C. 5

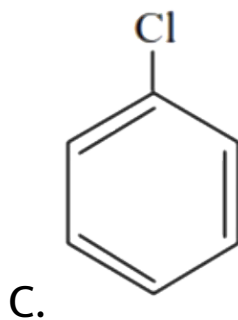
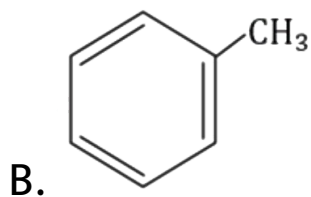
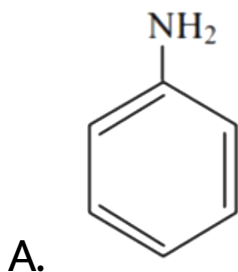
D. 4

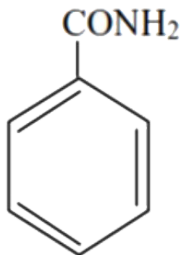
Answer: D



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14. Which of the following can give highest yield in Friedel craft reaction?

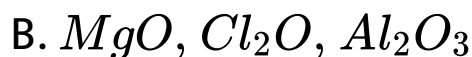




Answer: B

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15. Which of the following oxides are acidic, basic and amphoteric Respectively.



C. Na_2O , SO_3 , Al_2O_3

D. N_2O_3 , Li_2O , Al_2O_3

Answer: D



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16. Which of the following statements is incorrect ?

A. Dissolution of group IA hydroxide is endothermic

B. Group IA hydroxide are hygroscopic

C. Group IA hydroxides form ionic crystals

D. Aqueous solution of group IA hydroxides
are strongly basic

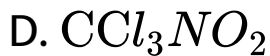
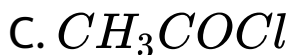
Answer: A



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17. The substance employed as a tear gas is

A. $COCl_2$



Answer: D



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18. B has a smaller first ionization enthalpy

than Be. Consider the following statements

(i) it is easier to remove 2p electron than 2s

electron

(ii) 2p electron of B is more shielded from the nucleus by the inner core of electrons than the 2s electrons of Be

(iii) 2s electron has more penetration power than 2p electron

(iv) atomic radius of B is more than Be (atomic number B= 5, Be = 4) The correct statements are

A. (i),(ii) and (iv)

B. (i),(iii) and (iv)

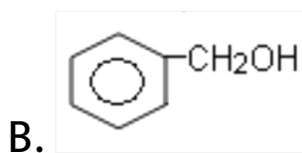
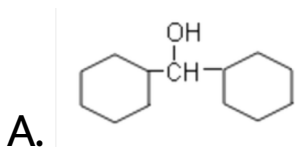
C. (i),(ii) and (iii)

D. (ii),(iii) and (iv)

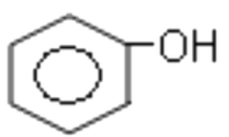
Answer: C

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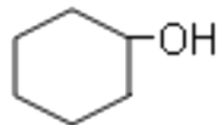
19. Which one of the following compounds has the most acidic nature ?



C.



D.



Answer: C



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20. Extraction of metal from the ore cassiterite involves

(i) carbon reduction of an oxide are

(ii) self reduction of a sulphide or

(iii) removal of copper impurity

(iv) removal of iron impurity

A. 1,3,4

B. 2,3,4

C. 2,3

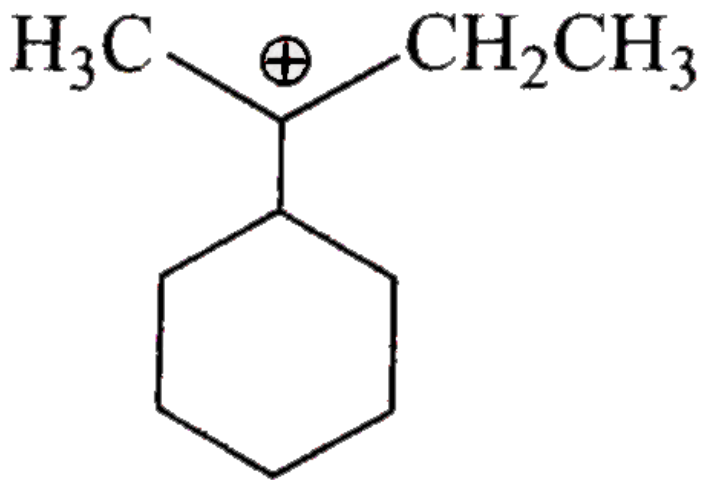
D. 3,4

Answer: B



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21. The total number of contributing structures showing hyperconjugation (involving $C - H$ bonds) for the following carbocation is



A. 4

B. 5

C. 6

D. 8

Answer: C



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22. Antiseptics and disinfectants either kill or prevent growth of microorganism. Identify which of the following statements is not true :

A. Chlorine and iodine are used as strong disinfectants .

B. Dilute solutions of Boric acid and hydrogen Peroxide are strong antiseptics.

C. Disinfectants harm the living tissues.

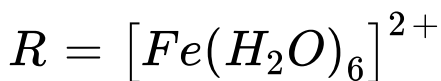
D. A 0.2% solution of phenol is an antiseptic while 1% solution acts as a disinfectant.

Answer: B



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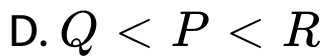
23. Consider the following complexes ion P , Q and R



The correct order of the complex ions, according to their spin only magnetic moment values (in BM) is .

A. $R < Q < P$

B. $Q < R < P$

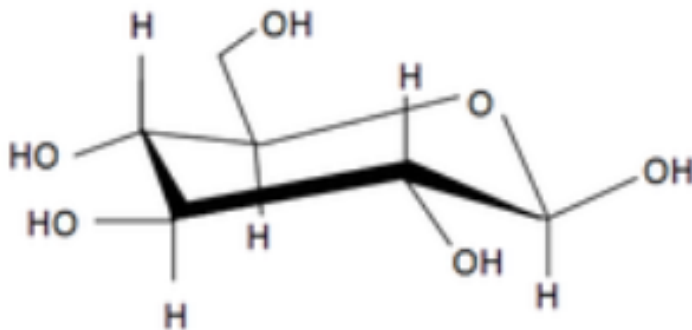


Answer: B



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24. The following carbohydrate is



A. An aldohexose

B. A ketohexose

C. An α - pyranose

D. An α - furanose

Answer: A



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25. Oxidation states of the metal in the minerals haematite and magnetite, respectively, are

A. II, III in haematite and II in magnetite

B. II, III in haematite and III in magnetite

C. III in haematite and II,III in magnetite

D. II in haematite and II, III in magnetite

Answer: C



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26. $\left[NiCl_2 \{ P(C_2H_5)_2(C_6H_5) \}_2 \right]$ exhibits temperature dependent magnetic behaviour.

The coordination geometries of Ni^{2+} in the paramagnetic and diamagnetic states are:

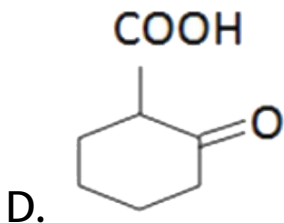
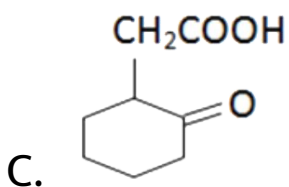
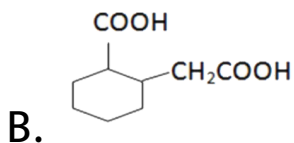
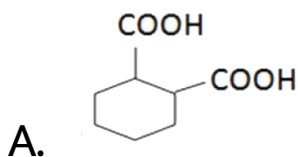
- A. Square planar and square planar
- B. Tetrahedral and tetrahedral
- C. Square planar and tetrahedral
- D. Tetrahedral and square planar

Answer: D



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27. The compound that undergoes decarboxylation most readily under mild condition is

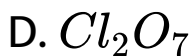
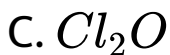
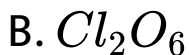


Answer: D



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28. Bleaching powder contains a salt of an oxoacid as one of its components . The anhydride of that acid is

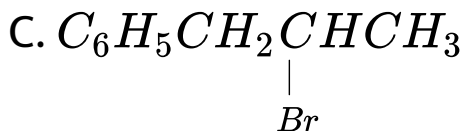
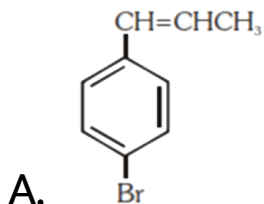


Answer: C



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29. The reaction of $C_6H_5CH = CHCH_3$ with HBr produces :





Answer: D



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30. In Duma's method for estimation of nitrogen. $0.25g$ of an organic compound gave $40mL$ of nitrogen collected at $300K$ temperature of $725mm$ pressure. If the aqueous tension at $300K$ is $25mm$, the percentage of nitrogen in the compound is

A. 18.20

B. 16.76

C. 14.76

D. 20.36

Answer: B



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31. The activation energy of a reaction can be determined from the slope of which of the following graphs ?

A. $\ln K$ vs. T

B. $\ln K$ vs. $\frac{1}{T}$

C. $\frac{\ln K}{T}$ vs $\frac{1}{T}$

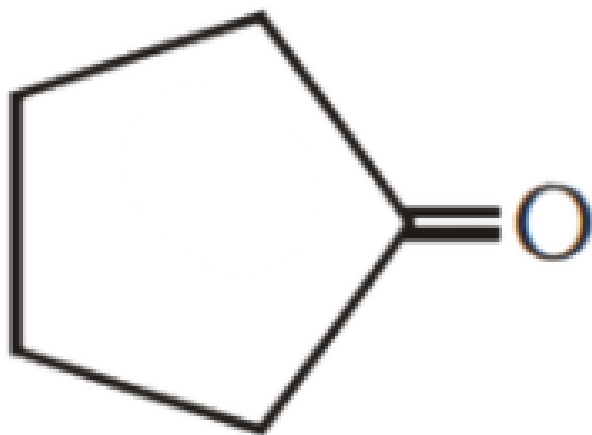
D. $\frac{\ln K}{T}$ vs. T

Answer: B



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32. Treatment of cyclopentanone



with

methyl lithium gives which of the following species ?

A. Cyclopentanonyl biradical

B. Cyclopentanonyl radical

C. Cyclopentanonyl cation

D. Cyclopentanonyl anion

Answer: D



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33. A given metal crystalline out with a cubic structure having edge length of 361 pm . If there are four metal atoms in one unit cell, what is the radius of metal atom?

A. 64 pm

B. 128.35 pm

C. 64.18 pm

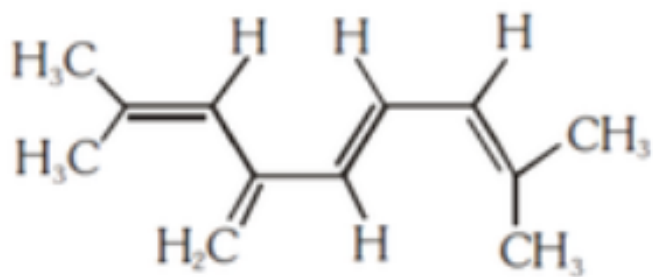
D. 108 pm

Answer: B



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34. The total number of π - bond electrons in the following structure is



- A. 8
- B. 16
- C. 4
- D. 12

Answer: A



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35. If the value of equilibrium constant for a particular reaction is 1.6×10^{12} , then at equilibrium the system will contain

- A. mostly reactants
- B. mostly products
- C. similar amounts of reactants products
- D. all reactants

Answer: B



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36. A device that converts energy of combustion of fuels like hydrogen and methane, directly into electrical energy is known as

A. Electrolytic cell

B. Dynamo

C. Ni - Cd cell

D. Fuel Cell

Answer: D



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37. A mixture of gases contains H_2 and O_2 gases in the ratio of $1:4(w/w)$. What is the molar ratio of the two gases in the mixture?

A. 4:1

B. 16:1

C. 2:1

D. 1:4

Answer: A



38. Because of lanthanoid contraction, which of the following pairs of elements have nearly same atomic radii ? (Number in the parenthesis are atomic numbers)

A. Zr (40) and Nb (41)

B. Zr (40) and Hf (72)

C. Zr (40) and Ta (73)

D. Ti (22) and Zr (40)

Answer: B



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39. Biodegradable polymer which can be produced from glycine and aminocaproic acid.

A. PHBV

B. Buna - N

C. Nylon 6,6

D. Nylon 2 - nylon 6

Answer: D



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40. Which one is not equal to zero for an ideal solution?

A. ΔS_{mix}

B. ΔV_{mix}

C. $\Delta P = P_{\text{observed}} - P_{\text{Raoult}}$

D. ΔH_{mix}

Answer: A



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41. Nitrogen dioxide and sulphur dioxide have some properties in common, which property is shown by one of these compounds, but not by the other?

A. forms 'acid -rain'

B. is a reducing agent

C. is used as a food - preservative

D. is soluble in water

Answer: C



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42. The electrolytic reduction of nitrobenzene in strongly acidic medium produces .

A. Azoxybenzene

B. Aniline

C. Azobenzene

D. p - Aminophenol

Answer: D



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43. An organic compound 'X' having molecular formula $C_5H_{10}O$ yield phenylhydrazone and gives negative response to the iodoform test and Tollens test . It produces n-pentane on reduction. 'X' could be

A. pentanal

B. 3 - pentanone

C. 2 - pentanone

D. n - amyl alcohol

Answer: B



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44. The mass percentage of nitrogen in histidine is _____.

[Atomic mass H=1, C =12, N = 14, O =16]

A. 18.92

B. 57.2

C. 37.84

D. 34.64

Answer: C



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45. Which one of the following statements regarding photochemical smog is not correct?

- A. Carbon monoxide does not play any role in photochemical smog formation
- B. Photochemical smog is an oxidising agent in character
- C. Photochemical smog is formed through photochemical reaction involving solar energy
- D. Photochemical smog does not cause irritation in eyes and throat

Answer: D



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