CHEMISTRY

BOOKS - FULL MARKS CHEMISTRY (TAMIL ENGLISH)

SOLVED PAPER 03

Part I

1. The equivalent mass of a trivalent metal element is $9 \mathrm{geq}^{-1}$ the molar mass of its

anhydrous oxide is.....

A. 102g

B. 27g

C. 270g

D. 78g

Answer: A

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2. Based on equation $E = -22.178 \times 10^{-18} J \dfrac{z^2}{n^2}$

certain conclusions are written.

    A. Equation can be used to calculate the change in energy when the electron changes orbit.

    B. For n=1, The electron has a more negtative then it does for n=6 which means that the electron is more loosely bound in the smallest allowed orbit.

C. the negative sign in equation simply means that the energy of electron bound to the nucleus is lower than it would br if the electrons were at the infinite distance from the nucleus.

D. Larger the value of n, the larger is the orbit radious

Answer: B

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3. Match the folowing

List-I		List-II	
A.	Jewels	1.	Sodium chloride
B.	Bolts and cot	2.	Copper
C.	Table salt	3.	Gold
D.	Utensils	4.	Iron

A. A-3, A-4,A-1,A-2

B. B-4,B-1,B-4,B-3

C. C-1,C-3,C-2,C-4

D. D-2,D-2,D-3,D-1

Answer: A

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4. The recation

$$H_3PO_2 + D_2O \rightarrow H_2DPO_2 + HDO$$
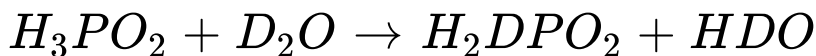
indicates that hypo-phosphrous acid is....

A. tribasic acid

B. dibasic acid

C. mono basic acid

D. none of these

Answer: C

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5. RbO_2 is......

    A. superoxide and paramagenetic

    B. peroxide and diamagnetic

    C. superoxide and diamagnetic

    D. peroxide and paramagnetic.

Answer: A

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6. At idential tempreture and pressure , yhe rate of diffusion of hydrogen gas is $3\sqrt{3}$ times that of a hydrocarbon having moleculer formula C_nH_{2n-2} What is the value of n?

A. 8

B. 4

C. 3

D. 1

Answer: B

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7. Statement-I: All living things are open systems.

Statement-II: Because they continuously exchange matter and energy with thr surroundings.

A. Statement-I and II are correct and statement-II is correct explanation of statement-I.

B. Statement_iI and II are correct but statement II is not the correct

explanantion of statement_I

C. statement I is correct and statement II is

wrong

D. statement_I is wrong but Statement_II is

correct

Answer: A

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8. The values of K_{P_1} and K_{P_2} for the reactions: $X \Leftrightarrow Y'Z$ and $A \Leftrightarrow 2B$ are in the ratio 9:1 if degree of dissociation and initial concentration of X and A be equal then total pressure at equilibrium P_1, and P_2 are in the ratio.

    A. $36:1$

    B. $1:1$

    C. $3:1$

    D. $1:9$

Answer:

9. Which of the following is not an non-ideal solution showing negative deviation?

    A. phenol and aniline

    B. ethanol and water

    C. acctone+Chloroform

    D. n-Heptane and n-Hexane

Answer: D

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10. In CIF_3, NF_3 and BF_3 molecules the chlorine nitrogen and boron atoms are...

A. sp^3 hybridised

B. $sp^3, sp^3,$ and sp^3 respectivily

C. sp^2 hybridised

D. sp^3d, sp^3 and sp^2 hybridiesd

      respectively

Answer: D

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11. The number of stereoisomers of 1,2-dihydroxycylopentane is ....

     A. 1

     B. 2

C. 3

D. 4

Answer: C

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12. Consider the following statement?

(i) Covalent bonds are break into two different ways.

(ii) They are homolytic and heterolytic cleavage.

(iii) During the fission of a covalent bond organic compounds from a new organic molecules

Which of the above statement is/are not correct.

A. (i) only

B. (i) and (ii)

C. (iii) only

D. (ii) and (iii)

Answer: C

13. Major product of the below mentioned reaction is ..... $(CH_3)_2C = CH_2 \xrightarrow{ICI}$

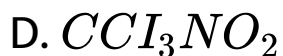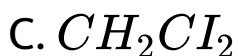A. 2-chloro-1-iodo-2-methypropane
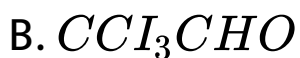
B. 1-chloro-iodo-2-methylpropane

C. 1,2-dichloro-2-methylpropane

D. 1,2-diiodo-2-mrthylpropane

Answer: A

14. The formila of Chloropicpin is...

A. $CHCI_3$

B. CCI_3CHO

C. CH_2CI_2

D. CCI_3NO_2

Answer: D

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15. Which of the following is carcinogetic and causes irritation in eyes and mocous membrane?

A. PAH

B. THF

C. CO_2
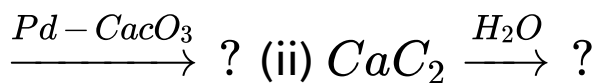
D. PAN

Answer: A

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1. Which is considered as to be earth protective umbrella? Why?

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2. Complete the following: (i) 2-butyne $\xrightarrow{Pd-CacO_3}$? (ii) $CaC_2 \xrightarrow{H_2O}$?

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3. How will you test supphur present is organic compounds?

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4. Which one of the folowing has highest bond order? N_2, N_2^+ or N_2^- ?

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5. Define the term isotonic solution.

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6. A sample of a gas has a volume of $8.5dm^3$ at an unknown tempreture, When the sample is submerged in ice water at $0°C$, its volume gets reduce to $6.37dm^3$ .What is its intial tempreture?

7. Mention the uses of washing soda (or) sodium carbonate.

8. What is water-gas shoift reaction?

9. What are Ψ and Ψ^2 ?

Part Iii

1. Distinguish between oxidation and reaction.

2. Why there is a need for classficatiion of elements?

3. Erite the balanced equation for following reaction . (i) Li metal with N_2 gas. (ii) Heating

solid sodium bicarbonate (iii) Solid potassium hydroxide with CO_2

4. Discuss briefly the similarities between Be and Al.

5. A tank contains a mixture of 52.5g of oxygen and 65.1g of CO_2 at 300K the total presuure in

the tank is 9.21atm. Calculate the partial

pressure (in atm) of each gas in the mixture?

6. Why He_2 molecule does not exist?

7. Write all the possible isomers of molecules

formula $C_4H_{10}O$ and identify the isomerisms

found in them.

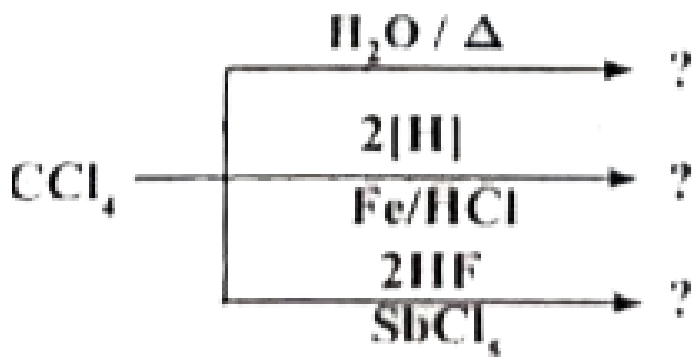**8.** Explain how oxygen deficiency is caused by carbon monoxide in our blood? Give its effect.

9. Complete the reaction, CCI_4

CCI_4 →

- H_2O / Δ → ?
- $2|II|$ / Fe/HCl → ?
- $2IIF$ / SbCl$_5$ → ?

Part Iv

1. (i) How many orbits are possible for n=4?

(ii) What are the limitations of bohr's model of

an atom?

2. (i) $LiCIO_4$ is more soluble than $NaCIO_4$

Why?

(ii) Explain-IE_1 of alkaline earth metals are higher than that of alkali metal.

3. (i) Can a Vandrewaal's gas with a=0 be liquefied? Explain

(ii) Deep sea divers ascend slowly and breath

continuously by time they reach the surface.

Give reason ?

4. (i) What are spontaneous reaction?

(ii) Prove that for an ideal gas C_P is greater than C_V

5. (i)State the law of mass action.

(ii) Deduce the vant equation.

6. (i) What is a π-bond?

(ii)Discuss the formation of N_2 molecule using MO theory.

7. (i) Explain-Column chromatography.

(ii) Give the structure fot the following compund.

(a) Give the butyl iodide (b) 3-Chlorobutanol

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8. (i) Explain-eletromeric effect.

(ii) Give the example forβ-elimination.

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9. (a) An organic compond A of a moleculer formula C_3H_6, reacts with HBr to give B which is the major product for this raction. A again reacts with HBr in presence of benzoyl peroxide to give C. Indentify A,B and C. Explain the reactions.

10. (i) Explain-The Bhopal Tragedy.

(ii) What are the particulate that cause the pollutions in troposphere?

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