



CHEMISTRY

BOOKS - NAGEEN CHEMISTRY (ENGLISH)

SAMPLE QUESTION PAPER -1

Fill In The Blanks

1.and..... are temperature independent mode of concentration representation.



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2. Trichloroacetic acid is..... acidic than acetic acid due toeffect.

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3. Why is an aqueous solution of NH_4Cl acidic ?

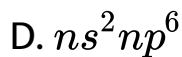
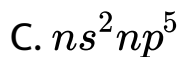
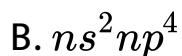
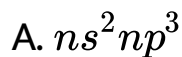
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4.on hydrolysis gives ethyne whileon hydrolysis gives methane.

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Multiple Choice Question

1. The electronic configuration of the outer most shell of the most electronegative elements is

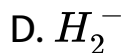
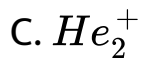
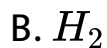
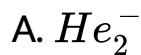


Answer:



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2. Which of the following species is diamagnetic in nature?



Answer:



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3. The volume of .10 vol' H_2O , required to liberate 500 ml of O_2 at NTP is:

- A. 50 ml
- B. 25 ml
- C. 100 ml
- D. 125 ml

Answer:



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4. The compound which is not isomeric with diethyl ether is:

A. methyl n-propyl ether

B. 1-butanol

C. 2-methyl propan-2-ol

D. butanone

Answer:



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Match The Following

1. Match the following:

(i) Magnetic quantum number -(a) Optical isomerism

(ii) Boron halides -(b) Sodium carbonate

(iii) Lactic acid -(c) Orientation of the orbital

(iv) Solvay's process -(d) Lewis acid.



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Answer The Following Questions

1. For a molecule, $N_b = N_a$, will the molecule be stable?



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2. (1) Which alkyne on reductive ozonolysis will produce glyoxal only?

(2) Which gas is produced on dehydrohalogenation of ethyl iodide?

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3. At absolute zero, the entropy of a pure crystal is zero. This is

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4. Give reason:

Alkali metals are good reducing agents

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5. In the Carius method of estimation of halogens, 0.250 g of an organic compound gives 0.141 g of AgBr. Calculate the percentage of bromine in the compound.

(At. wt. of Ag= 108, Br= 80).

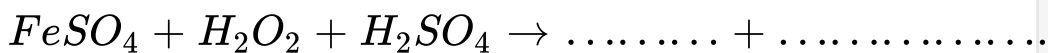
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6. In a Carius determination, 0.234 g of an organic substance gave 0.334 g of barium sulphate. Calculate the percentage of sulphur in the given compound

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7. Complete and balance the following equations:

(i)



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8. A dry gas measuring 280 ml at 305 K and 750 mm of Hg, weighs 0.344 g. Calculate the molecular weight of the gas.



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9. Write the structural formula of the compounds having the following IUPAC names.

(i) 5-methyl hept-3-enal

(ii) 3-hydroxy-6, 6-dimethyl hept-4-ene-1-oic acid.



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10. The first ionisation enthalpy of nitrogen ($Z=7$) is greater than that of oxygen ($Z =8$) but the reverse is true for the second ionisation enthalpy. Explain why.

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11. An unsaturated hydrocarbon 'A' adds two molecules of H_2 and on reductive ozonolysis gives butane-1, 4-dial, ethanal and propanone. Give the structure of 'A', write its IUPAC name and explain the reactions involved.

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12. How will you convert the following:

(i) Ethyl alcohol to ethene

(ii) Propene to 2-bromopropane.



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13. (a) An atomic orbital has $n = 3$. What are the possible values of l ?

(b) What is the maximum number of electrons that can be accommodated in a shell with principal quantum number n ?



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14. (i) Which one of the following is more paramagnetic Fe^{2+} or Fe^{3+} ? Explain.

(ii) What is the number of unpaired electrons in Mn^{2+} ion? (At.no. Mn= 25).

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15. Hydrogen combines with oxygen and forms two compounds. In the first compound, hydrogen content is 5.93% while in the other compound it is 11.2%. Verify whether the data agrees with law of multiple proportions.

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16. 750 ml of N_2 gas when taken in a vessel has pressure equal to 900 mm of Hg 1200 ml of O_2 gas when taken in another vessel has pressure equal to 1450 mm of Hg. If both the gases are taken in 1000 ml vessel, what will be the total pressure exerted by the mixture of above gases? Assume that the gases are non-reacting.



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17. How would you account for the following :

The stability of +5 oxidation state decreases down the group 15 of the periodic table.

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18. Calculate the standard heat of formation

(ΔH_f°) of $C_6H_{12}O_6(s)$ from the following data:

(i) ΔH_c of $C_6H_{12}O_6(s) = -2816 \text{kJ mole}^{-1}$

(ii) ΔH_f° of $CO_2(g) = -395.5 \text{kJ mole}^{-1}$

(iii) ΔH_f° of $H_2O(l) = -285.9 \text{kJ mole}^{-1}$

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19. Which of the following possesses higher entropy:

(1) Gaseous substance

(2) Liquid substance



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20. The gas leaked from a storage tank of the Union Carbide plant in Bhopal gas tragedy was

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21. Discuss the optical isomerism of lactic acid.

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22. Write the molecular orbital configuration of N_2 . Calculate the bond order and predict its magnetic behaviour.



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23. (ii) Find the oxidation number of:

(1) S in $Na_2S_4O_6$

(2) Cr in K_2CrO_7

(3) Mn in K_2MnO_4

(4) Fe in Fe_3O_4



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24. Give reasons for the following: (1) HNO_3 acts only as an oxidising agent while HNO_2 can act both as a

reducing agent and an oxidising agent

(2) Chlorine liberates iodine from KI solution.

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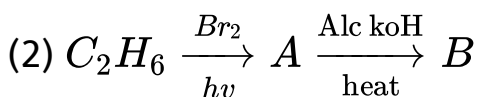
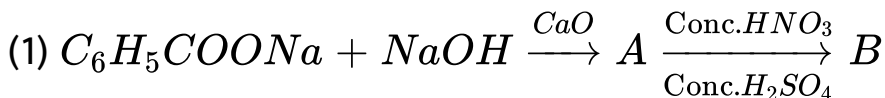
25. How will you convert the following?

(1) Sodium acetate to methane

(2) Benzene to toluene

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26. (i) Identify the compounds A and B.



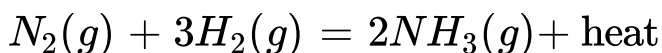
(ii) State an appropriate chemical test used to distinguish between the following pairs of compounds:

(1) Ethene and Ethyne

(2) But-1-ene and but-2-ene.

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27. 15 moles of N_2 is mixed with 20 moles of H_2 in an 8 litre vessel. 5.6 moles of ammonia is formed Calculate K_c for the equation,



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28. On the basis of Le- Chatellier's principle ,discuss the condition for obtaining the maximum yield of SO_3 in the following reactions :



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