



CHEMISTRY

BOOKS - UNITED BOOK HOUSE

KALIDHAN INSTITUTION QUESTION PAPER

Exercise

1. Impossible orbital among the following is:

A. 2s

B. 3f

C. 2p

D. 4d

Answer:

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2. Which one of the following contains ionic, covalent and coordinate bonds?

A. NaOH

B. NaOH

C. NaCl

D. NaNC

Answer:

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3. Which one of the following has the shortest bond length?

A. $C - H$

B. $C - N$

C. $C - O$

D. $C - C$

Answer:



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4. The rate of diffusion of methane is twice that of x. The molecular mass of x is:

A. 16

B. 32

C. 80

D. 64

Answer:

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5. Equation of Boyle's law is :

A. $\frac{dp}{p} = - \frac{dv}{v}$

B. $\frac{dp}{p} = + \frac{dv}{v}$

C. $\frac{d^2p}{p} = + \frac{dv}{dt}$

D. $\frac{d^2p}{p} = \frac{d^2v}{dt}$

Answer:

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6. For a spontaneous reaction, the ΔG equilibrium constant (K) and E_{cell}° will be respectively:

A. $-ve > 1 + ve$

B. $+ve > 1 - ve$

C. $-ve < 1 - ve$

D. $-ve > 1 - ve$

Answer:



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7. Entropy of a substance is expressed in the units :

A. $J^{-1}k^{-1}mol^{-1}$

B. $Jk^{-1}mol^{-1}$

C. $KJ^{-1}mol^{-1}$

D. $KJmol^{-1}$

Answer:



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8. Which one does not exhibit a positive oxidation state in its compounds?

A. Cl

B. Br

C. I

D. F

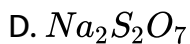
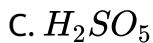
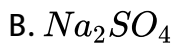
Answer:



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9. Oxidation number of Cr in CrO_3 is the same as that of S in :

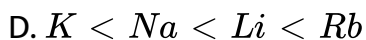
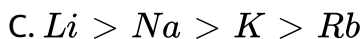
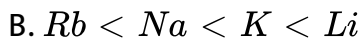
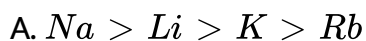
A. Na_2SO_3



Answer:

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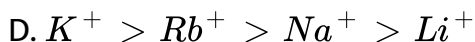
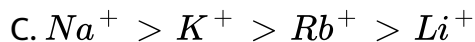
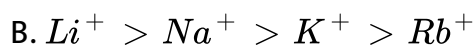
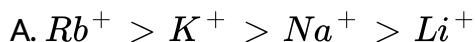
10. The order of decreasing ionisation enthalpy in alkali metal is:



Answer:

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11. The correct order of mobility of the alkali metal ions in aqueous solution is:



Answer:

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12. The correct order of second ionisation potential of carbon, nitrogen, oxygen and fluorine is-



B. $O > N > F > C$

C. $O > F > N > C$

D. $F > O > N > C$

Answer:

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13. Which of the following is smallest in size?

A. N^{-3}

B. O^{-2}

C. I^{+}

D. Na^{+}

Answer:

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14. The number of molecules 67.2 L of a gas at $0^{\circ}C$ and 1 atm pressure is:

A. 6.02×10^{23}

B. 12.04×10^{23}

C. 18.06×10^{23}

D. 24.08×10^{23}

Answer:

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15. Fill in the blank. The gram atoms contains in 5 g of calcium are_____.

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16. Fill in the blank. The number of molecules in 8 gm of methane is _____.

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17. Give one example of extensive property.

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18. Write the unit of a used in Vanderwaal's equation.

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19. What is effusion?

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20. Give an example of a compound having trigonal bipyramidal structure.

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21. State with example law of reciprocal proportion.

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22. Give the limitation of multiple proportion.

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23. Write two difference between orbit and orbital. What difference will be found in 2p & 3p orbital.

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24. Endothermic process may also be spontaneous— Explain giving condition.

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25. Calculate the entropy change in vapourisation of 9 gm water at $100^{\circ}C$.

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26. Calculate the value of universal gas constant in CGS unit.

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27. Write the electronic configuration of oxygen molecule.

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28. The percentage of carbon and hydrogen in an organic compound are 92.5 and 7.5. Determine the molecular formula of the compound if its vapour density is 39.

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29. An electron has a velocity of 300m.s^{-1} that is accurate to .001%. With what accuracy can one locate the position of this electron ($m_e = 9.1 \times 10^{-31}\text{kg}$)?

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30. The mass of a proton and an electron are $1.67 \times 10^{-24} \text{ g}$ and 9.11×10^{-28} respectively. Calculate the ratio of their wavelengths if the proton is, moving with half the velocity of the electron.

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31. Define ionisation potential. State its change down a group.

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32. Give one example of intramolecular hydrogen bond. Explain why KHF_2 exists but KCl_2 does not.

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33. Calculate the ratio of the values of average velocity, root mean square velocity, most probable velocity of a gas at a particular temperature.

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34. Why does real gas deviate from ideal gas behaviour? Under what condition does a real gas behave ideally?

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35. Balance the equation by oxidation number method.



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36. Explain why : Lithium is metal but it produces covalent compound.

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37. Explain why :Why is KO_2 paramagnetic in nature.

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38. The ΔH_{fusion}° and ΔS_{fusion}° of CI_4 are $2.5 KJmol^{-1}$ and $9.99 JK^{-1}mol^{-1}$ respectively at 298 K. Find the temperature at which solid CI_4 and its liquid are in equilibrium at 1 atm.

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39. 56 gm of N_2 gas is expanded isothermally and reversibly from 2 litres to 20 litres at $27^\circ C$. Calculate the work done in the process.

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40. Determine the hybridisation of nitrogen in NO_3^- ion. Why is carbon disulphide non-polar?

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41. What is mole? Establish the relation between amu and gm.

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42. Show the number of unpaired electron in Co^{+3} ion. Is it paramagnetic?



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43. Name the element having atomic number 109 by IUPAC system, What is diagonal relationship?



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44. Explain the formation of BH_4^- , from BH_3 .



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45. A mixture of 4 gm of hydrogen and 16 gm of oxygen has a total pressure, of 750 mm. Calculate the partial pressure of oxygen.



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46. Calculate the sp^3 hybridisation of indicated atoms in bleaching power, $Ca(OCl)_2$.

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47. Potassium permanganate has different equivalent weights in different reaction— Explain with equation.

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48. How do the following properties of alkali metals' change down the group: Ionic radii, Justify your statement.

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49. How do the following properties of alkalimetals' change down the group: Density,Justify your statement.

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50. Write the limitations of first law of thermodynamics.

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