

Atomic orbital and calculate oxidation number assignment



Q1-Q8 (1MARKS EACH) Q9-Q18 (2MARKS EACH). Q19-Q27 (3 MARKS EACH)
 Q28-Q30 (5 MARKS EACH)

Q1. State law of constant composition. Q2. How is 0.5m of NaOH different from 0.5M of NaOH? Q3. State Heisenberg uncertainty principle. Q4. Write general electronic configuration of d-block elements. Q5. Define Resonance. Q6. What is compressibility factor? Q7. Define Buffer solution? What is common ion effect? Q8. What is Demineralised water? Q9. Calculate the concentration of nitric acid in moles per litre in a sample which has a density of 1.1g/ml and mass% of nitric acid is 69%. Q10. Calculate energy of one mole of photons of radiation whose frequency is 5×10^{10} Hz. (page 39. Q. 1) Q11. Write down the electronic configuration of copper and chromium. Q12. Calculate the wavelength of 100 gm of particle moving with a velocity of 100m/s. Q13. Complete the following:- a) $\text{Na}^+ + \text{H}^+ \rightleftharpoons \text{NaH}^+$ b) $\text{Cl}^- + \text{H}^+ \rightleftharpoons \text{HCl}$ Q14:- Write resonance structure of NO^+ and SO_3 ? Q15. :-What is electro negativity. How it is different from electron gain enthalpy? Q16. on a ship sailing in pacific ocean where temp. is 23.4°C a balloon is filled with 2L air what will be the volume of balloon when ship reaches Indian ocean where temp. is 26.1°C ? (page no. 139) Q17. For the reaction $2\text{Cl}(g) \rightleftharpoons \text{Cl}_2(g)$ What are the signs of ΔH and ΔS . 2. Define Enthalpy? Q18. Calculate pH of 0.2M H_2SO_4 solution? Q19. :- 1. An atomic orbital has $n=3$ What are the possible values of l and m ? 2. List the quantum numbers (l and m) of electrons for 3d orbital 3. Which of the following orbital's are possible 1p, 2s, 2p and 3f Q20. 1. Write IUPAC name of element with atomic number 120. . Which of the following species will have largest and smallest size Mg , Mg^{2+} , Al , Al^{3+} 3. Why cations are smaller than anions in radii than their parent atoms? Q21. Discuss the shapes of following molecules on the basis of <https://assignbuster.com/atomic-orbital-and-calculate-oxidation-number-assignment/>

VSEPR model. 1. SiCl_4 2. PH_3 3. H_2O Q22. 1. Why do real gases deviate from ideal gas behavior 2. Write vander wall's equation? Q23. What do you understand by the following 1. Entropy 2. Gibbs free energy 3. 2nd law of thermodynamics Q24. The enthalpy of combustion of methane, graphite and dihydrogen at 298K Are -393.5 kJ/mol , $-285. \text{ kJ/mol}$ respectively.

Calculate enthalpy of formation of methane? Q25. 1) Give the conjugate acid and base of following: a) H_2O b) HSO_4^- 2) Define solubility product?

Q26. The solubility of AgCl in water at 298K is $1.06 \times 10^{-5} \text{ mol/litre}$. Calculate its solubility product at this temperature? Q27.

Complete the following a) $\text{PbS(s)} + \text{H}^+(\text{aq}) >$ b) $\text{CaO(s)} + \text{H}^+(\text{s}) >$ c) $\text{AlCl}_3(\text{s}) + \text{H}_2\text{O(l)} >$ Q28. 1) Calculate oxidation number of underlined element in the following :- a) NaHSO_3 b) KMnO_4 2) How will you justify that following are Redox reactions) $\text{CuO(s)} + \text{H}_2(\text{g}) > \text{Cu(s)} + \text{H}_2\text{O(g)}$ b) $\text{Fe}_2\text{O}_3(\text{s}) + 3\text{CO(g)} > 2\text{Fe(s)} + 3\text{CO}_2(\text{g})$ OR 1.) What are the different types of Redox reactions ? Give examples? 2) Balance the following reaction by oxidation number method:- $\text{MnO}_4^- + \text{Fe}^{2+} > \text{Mn}^{2+} + \text{Fe}^{3+} + \text{H}^+\text{O}(\text{acidic medium})$. Q29:- 1)

Define hydrogen bonding? What are different types of hydrogen bonds? Give examples? 2) Calculate bond order of O_2 , O_2^+ , O_2^{2+} and indicate their magnetic properties OR Draw molecular orbital energy level diagram of O_2 and N_2 . Calculate their bond order.

Write electronic configuration and predict their magnetic behavior? Q30. :-

1) Give Lowry-Bronsted concept of Acid and Base? 2) What is K_c for the following reaction at equilibrium? $2\text{SO}_2(\text{g}) + \text{O}_2(\text{g}) \rightleftharpoons 2\text{SO}_3(\text{g})$ Given $[\text{SO}_2] = 0.6 \text{ M}$, $[\text{O}_2] = 0.82 \text{ M}$ and $[\text{SO}_3] = 1.90 \text{ M}$ OR 1) What do you understand by auto-protolysis of water? 2) What is diagonal relationship? Discuss diagonal

relationship between lithium and magnesium?

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BEST OF LUCK FOR YOUR

EXAM..... BY

LALIT.