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ANDHRA EDUCATION SOCIETY SCHOOLS
SA-1 TERMINAL EXAMINATION - 2015 - 2016
SUBJECT - CHEMISTRY
CLASS - XI

TIME- 3 HR.

M.M. -70

Instructions : 1) Q1 to Q 8 carries 1 mark each.

2) Q9 to Q 18 carries 2 mark each.

3) Q 19 to Q 27 carries 3 mark each.

4) Q 28 to Q 30 carries 5 mark each.

Q1. What is mass of one $^{16}\text{O}_8$ atom in grams?

Q2. Calculate number of electron in N_2^+ and N_3^- ions?

Q3. Define molality? How it depends on temperature?

Q4. Mention hybridization of carbon atom in following 1) CH_3OH 2) $\text{CH}_3-\text{C}-\text{CH}_3$

Q5. Write electronic configuration of 1) Ne 2) Cr

Q6. Arrange the following in increasing order of metallic character Na, Mg, Be, Si, P.

Q7. Assign oxidation number of underlined element 1) $\text{Li}\underline{\text{Al}}\text{H}_4$ 2) $\text{K}_2\underline{\text{Cr}}_2\text{O}_7$

Q8. What happens when sodium peroxide dissolved in water?

Q9. If velocity of electron in Bohr's first orbit is 2.19×10^6 m/s. Calculate de- Broglie wavelength associated with it?

Q10. Define bond order. Calculate bond order of O_2^+ ?

Q11. A compound contains 4.07% H, 24.27% C, and 71.65% Cl. Molar mass of compound is 98.96g. What is the molecular formula of the compound?

Q12. Which of following orbitals are possible 1p, 2s, 2p and 3f orbitals?

Q13. Write resonating structure of CO_3^{2-} ion ?

Q14. A 40% HCl is found to have density of 1.20g/ml. Calculate molarity of solution?

OR

Why does the solubility of alkaline earth metal hydroxide in water increases down the group?

Q15. Is there any change in hybridization of B and N atom as a result of following reaction



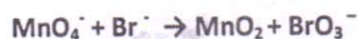
Q16. Explain 1) ionic bond 2) Pauli's exclusion Principle and why it is called exclusion principle?

Q17. Explain why CO_2 molecule has a zero dipole moment although C-O bonds are polar?

Q18. 1) Li_2CO_3 decomposed at lower temperature whereas Na_2CO_3 at higher temperature?

2) BeO is insoluble but BeSO_4 is soluble in water?

Q19. Balance following equation in basic medium



Q20. 1) Write difference between orbitals and orbital?

2) What are isoelectronic species? Give an example?

Q21. 1) Energy associated with first orbit in H-atom is -2.18×10^{-18} J/atom. What is energy with 5th orbit?

2) What is maximum number of lines when an excited electron of an atom in $n = 4$ drops to ground state?

Q22. 1) Define H-bond? Is it weaker or stronger than van der Waals force?

2) H_2O is a liquid while H_2S is a gas. Why?

Q23. 1) Explain why alkali metal and alkaline earth metal do not obtained by chemical reduction method?

2) Explain the use of Plaster of Paris?

3) Why sodium is stored in kerosene oil?

Q24. 1) Explain why Be has higher IE_1 energy than B?

2) Why electron gain enthalpy of noble gas is positive?

3) Alkali metals show +1 oxidation state?

Q25. 1) Use molecular orbital theory to explain why O_2 exists but Be_2 not?

2) Compare the magnetic properties of O_2 , O_2^+ AND O_2^- ?

OR

1) Although both CO_2 and H_2O are tri-atomic molecules. The shape of H_2O is bent while that of CO_2 is linear. Explain why?

2) PCl_5 exists but NCl_5 does not. Why?

Q26. 3g of H_2 react with 29g of O_2 to form H_2O ?

1) Which is the limiting reagent?

2) Calculate maximum amount of H_2O that can be formed?

3) Calculate amount of reacted left unreacted?

Q 27. 1) Explain Photo-electric effect ?

2) Work Function of Cs is 1.9 eV. Calculate threshold wavelength(λ_0) and threshold frequency (ν_0)?

OR

i) Mention two drawbacks of Rutherford's Model of an atom? Give two usefulness of Bohr's model over Rutherford's Model?

Q28. 1) What do you understand by Hybridisation? Describe shapes of sp, sp^2, sp^3 orbitals?

2) Write Important Condition for L.C.A.O for Molecular Orbitals?

OR

1) What is VSEPR Theory? How does it explain Bond angle in CH_4, NH_3, H_2O ?

Q29. 1) A 25 watt Bulb emits monochromatic yellow light of $0.57\mu m$. Calculate rate of emission of Quanta per second?

2) What is de- Broglie wavelength? Derive De-Broglie relationship?

OR

1) How much energy is required to ionize a H -atom if electron occupy $n=5$ Orbit. Compare your answer with I.E of H - Atom (Energy required to remove electron from $n=1$)

2) Explain Aufbau's Principle?

Q30. 1) What are K, Cs rather than Li used in photoelectric cell?

2) Be & Mg donot give color to flame, whereas other alkali metals do. Why?

3) Draw the structure of $BeCl_2$ (vapour) and $BeCl_2$ (solid) phase?

4) A solution of Na_2CO_3 is alkaline why?

5) Alkali metals are prepared by electrolysis of their fused chlorides?

OR

1) Mobility of alkalimetal ions in aqueous solution is $Li^+ < Na^+ < K^+ < Rb^+ < Cs^+$. Explain why?

2) Li only forms nitrides directly why?

3) Give reaction of Cl_2 with slaked lime?

4) Sodium hydrogen bicarbonate on heating give which product?

5) Complete the reaction $Na_2O + CO_2 \rightarrow ?$