

## V & C Patel English School Mid-term Exam

Subject: Chemistry Date: 11-09-2017 Std: 11

Max.Marks: 70 Time: 3hrs.

- 1. All questions are compulsory.
- 2. Questions number 1 to 5 are very short-answer questions and carry 1 mark each.
- 3. Questions number 6 to 10 are short-answer questions and carry 2 marks each.
- 4. Questions number 11 to 22 are also short answer questions and carry 3 marks each.
- 5. Questions numbers 23 is a value based questions and carry 4 marks.
- 6. Questions numbers 24 to 26 are long answer questions and carry 5 marks each.
- 7. Use log-tables, if necessary. Use of calculators is not allowed.

## Questions :

- 1. How many significant figures are present in the following ? (a) 0.0036 (b) 208
- 2. One milligram is equals to (a) how many kilogram ? (b) how many nanogram ?
- 3. Calculate the number of electrons which will together weigh one gram. (Mass of one electron =  $9.11 \times 10^{-31}$ kg.
- 4. What are Triads ?
- 5. Define : Chemical bond.
- 6. Calculate the amount of carbon dioxide that could be produced when 1 mole of carbon is burnt in 16 g of dioxygen.
- 7. If the speed of light is  $3.0 \times 10^8 \text{ ms}^{-1}$ , Calculate the distance covered by light in 3  $\mu$ s.
- 8. Find total number of neutrons present in 7 mg of  $^{14}C$ .
- 9. Differentiate between mendeleev's periodic table and Modern periodic table.
- 10. With an example explain kossel-Lewis approach to chemical bonding.
- 11. Determine the empirical formula of an oxide of iron which has 69.9% iron and 30.1% dioxygen by mass.
- 12. Calculate the molarity of a solution of ethanol in water in which the mole fraction of ethanol is 0.040.
- 13. Diffrentiate between Molality & Molarity.
- 14. Find energy of each of the photons which correspond to light of frequency  $2 \times 10^{13} \text{ S}^{-1}$ . [h = 6.63 x  $10^{-34} \text{ J.S.}$ ]
- 15. What is the wavelength of light emmited when the eletron in a hydrogen atom undergoes transition from an energy level with n=4 to an Georgy level with n=2?
- 16. Explain Avogadro Law with an example.
- 17. Explain Rutherford's Nuclear Model of Aton.
- 18. Which of the following will have the most negative electron gain enthalpy and which the least negative ? P, S, Cl, F Explain your answer.

- 19. Give reasons :
  - (a) Boron has a smaller first ionization enthalpy than beryllium.
  - (b) Oxygen has smaller first ionization enthalpy compared to nitrogen.
- 20. Although geometries of NH<sub>3</sub> and H<sub>2</sub>O molecules are distored tetrahedral, bond angle in water is less than that in ammonia. Discuss.
- 21. Although both  $CO_2$  and  $H_2O$  are triatomic molecules, the shape of  $H_2O$  molecule is bent while that of  $CO_2$  is linear. Explain this on the basis of dipole moment.
- 22. Which out of NH<sub>3</sub> and NF<sub>3</sub> has higher dipole moment and why?
- 23. Explain in detail : Importance of chemistry in day to day life.
- 24. Explain the following in short.
  - a) Maxwell's explaination of electro magnetic Radiation.
  - b) Hertz's explanation of photoelectrc effect.
  - c) A difference between Emission and Absorption spectra.

d) In the filling-up electrons in the first transition elements series why electrons enters in 45 first and than 3d.

- e) What is the speciality about the electronic configuration of chromium and copper.
- 25. Explain periodic trends in properties of elements with respect to
  - a) Atomic Radius.
  - b) Ionizabion Enthalpy
  - c) Eletrcon Gain Enthalpy

## 26. Explain :

a) SP<sup>2</sup> Hydridisation in  $C_{2}H_{4}$ 

b) By drawing Energy level Diagram for molecular orbitals, explain bond order and magnetic nature of O<sub>2</sub> molecule.

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