

FACULTY HIGHER SECONDARY SCHOOL
SAMPLE PAPER
Sub: Chemistry
Half Yearly Examination, 2019
Class: XI (Science)

Max. Marks: 50

Time duration: 2 hrs

General Instructions:

- *All* questions are compulsory.
- Questions numbers 1 to 5 are very short answer questions and carry 1 mark each.
- Questions number 6 to 15 are short answer questions and carry 2 mark each.
- Questions number 16 to 20 are short answer questions and carry 3 mark each.
- Questions number 21 and 22 are long answer questions and carry 5 mark each.
- Use log tables if necessary. Uses of calculators are not allowed.

1. What is the SI unit of Molarity?
2. What will be the maximum number of electrons present in $n = 4$ state having $m_s = +\frac{1}{2}$?
3. Why 2d sub shell doesn't exist.
4. Arrange the following elements in order of increasing atomic sizes:
B, C, N, O
5. State Mendeleev's periodic law?
6. Calculate the total number of electrons present in 1.6 gm of CH_4 ?
7. Write two main postulates of Bohr's atomic model.
8. Write the electronic configuration of the following:
Zn, S^{2-}
9. Define ionisation enthalpy. How it changes along a period and in a group in the periodic table.
10. The kinetic energy of a moving electron is 4.55×10^{-25} Joule, Determine the wavelength for the electron.
11. Write two points of differences between Mendeleev's periodic law and the modern periodic law?
12. Explain why-
 - (i) Na has higher IE_2 than Mg.

(ii) N has higher IE_2 than O

13. What weight of zinc would be required to produce enough hydrogen to reduce completely 8.5 gm of copper oxide to copper.

14. Write the formulae to determine the percentage of an element in a compound with an example.

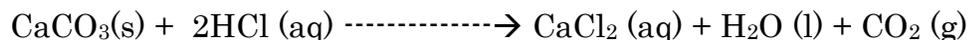
15. Calculate the energy of one mole of photon of radiation whose frequency is 5×10^{14} Hz.

16. Write three points of differences between emission spectrum and absorption spectrum.

17. State Pauli's exclusion principle. Why this principle is called exclusion principle.

18. Calculate the concentration of nitric acid in mol L^{-1} in a sample has a density 1.41 gm ml^{-1} and mass percent of HNO_3 is 69%.

19. If 20 gm of CaCO_3 is react with 20 gm of HCl, How many grams of CO_2 can be produced according to the reaction:



20. Write three drawbacks of Mendeleev's periodic law.

21. Define Photoelectric effect. The work function for cesium atom is 1.9 eV. Calculate (a) Threshold wavelength

(b) Threshold frequency of radiation.

22. The electronic configuration of some elements are given below:

(a) $1s^2 2s^2 2p^6 3s^2$ (b) $1s^2 2s^2 2p^6$ (c) $1s^2 2s^2 2p^2$ (d) $1s^2 2s^2 2p^6 3s^1$ (e) $1s^2 2s^2 2p^5$

(i) Which of these have lowest I.E.

(ii) Which is a halogen

(iii) Which is an alkali metal

(iv) Which is an inert gas

(v) Which shows valency 3.
