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Iˢᵗ PERIODIC TEST-2017
CHEMISTRY (Theory)

TIME: 90 Minutes   **Class XI**   **Maximum Marks : 50**

General Instructions:
(i) All questions are compulsory.
(ii) Marks for each question are indicated against it.
(iii) Question numbers 1 to 5 are very short-answer questions and carry 1 mark each.
(iv) Question numbers 6 to 11 are short-answer questions and carry 2 marks each.
(v) Question numbers 12 to 17 are also short-answer questions and carry 3 marks each.
(vi) Question numbers 18 to 20 are long-answer questions and carry 5 marks each.
*(vii) Use Log Tables, if necessary, Use of calculators is **not** allowed.*

QUESTION PAPER

1. Write de Broglie relationship----------1

2. Define mole ..--1

3. Which series of hydrogen spectrum lies in the visible region ?----------1

4. Which law deals with the ratios of the volume of the gaseous reactants and products ?

5. A solution is prepared by dissolving 2g of substance A in 18g of water .Calculate the mass percentage of solute.---------------------------------------1

6. Calculate the atomic mass of naturally occurring argon from the following data   2

Isotope	Relative abundance	Atomic mass
^{36}Ar	0.337%	35.96755
^{38}Ar	0.063%	37.96272
^{40}Ar	99.600	39.9624

7. Calculate the number of significant figures in the following values-------------2

(a) Planck's constant $=6.626 \times 10^{-34}$

(b) Velocity of light $=3.0 \times 10^{8}$

(c) 0.0048

(d) Avogadro Number $=6.023 \times 10^{23}$

8. Write the electronic configuration of Cu and Cr.   2

9. Explain the following with example ---------------------------------------2

(a) Isotopes

(b) Isobars

10. Calculate and compare energy of two radiations one with wavelength 400nm and other with 800nm.

11. How many molecule of water in a drop of water weighing 0.09g.   2

12. The density of 3 M solution of NaCl is 1.25g/ml. Calculate the molality of solution .   3

13. A 100 watt bulb emits electromagnetic light of wavelength 400 nm. Calculate the number of photons emitted per second by the bulb-------------------------------------3

14. Using s, p d f notation describe the orbital with the following quantum numbers   3

(a) $n = 3$, $l = 1$

(b) $n = 4$ $l = 2$

(c) $n = 4$, $l = 3$

15. Explain the following-------------------------3

(a) Black body radiation

(b) Photoelectric Effect

16. What are the basic postulates of Bohr's atomic model? ---------------3

17. Define the following   3

(a) Molarity

(b) Mole fraction

(iii) Pauli exclusion principle

18. (a) Explain the uncertainty principle.   2

 (b) Calculate the uncertainty in the position of a dust particle with mass equal to 1mg, if uncertainty in its velocity is 5.5×10^{-20}m/s .   3

19. The mass of an electron is 9.1×10^{-31}kg.If its kinetic energy is 5.0×10^{-25}j. Calculate is wavelength.

20.A wielding fuel gas contain carbon and hydrogen only. Burning a sample of it in oxygen gives 3.38 g carbon dioxide b,0.690 g water and no other products .A volume of 10.0 L (measured at STP) of this

wielding gas is found to weigh 11.6 g. Calculate (I) empirical formula (ii) molar mass of the gas and (iii) molecular formula.   5