

Class 11
10-8-2016

Second Unit Test (First Term) in CHEMISTRY

Time : 1 hr.
M. Marks : 20

1. What do you understand by Iso-electronic species? Give example. (1)
2. a) What are degenerate orbitals?
b) How many nodes are present in 2s orbitals? (1)
3. Using s, p, d, f notation describe the orbitals with following quantum numbers:
a) $n = 4, l = 3$ b) $n = 3, l = 1$ (1)
4. Calculate :
Wave number and frequency of yellow radiations having wave-length 580 nm.
($c = 3 \times 10^8$ m/sec) (2)
5. The velocity of electron in electron microscope is 1.6×10^6 m/sec. Calculate de Broglie wave length associated with it.
 $h = 6.626 \times 10^{-34}$ kg m²/sec $m = 9.11 \times 10^{-31}$ kg (2)
6. a) Define Ionisation Enthalpy.
b) Explain that first ionisation enthalpy of sodium is lower than that of magnesium but its second ionisation enthalpy is higher than that of magnesium. (2)
7. What is the wave length of the light emitted when the electron in a hydrogen atom undergoes transition from an energy level with $n = 4$ to an energy level $n = 2$?
Rydberg's constant = 109677 cm^{-1} . (2)
8. Give the orbital electronic configuration of i) Cu^+ ion ii) Fe. Indicate the number of unpaired electrons in each. (at. no. Cu = 29, Fe = 26) (3)
9. a) State aufbau principle.
b) Calculate the product of uncertainty in position and velocity for an electron of mass 9.1×10^{-31} kg. ($h = 6.6 \times 10^{-34}$ kg m²/sec). (3)
10. a) Explain why cations are smaller in size than their parent atom?
b) Write any two properties of d-block elements.
c) Differentiate between electron gain enthalpy and electronegativity. (3)

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