DEGLOOR COLLEGE, DEGLOOR

Class - B.Sc. I Year (sem-II) Subject - Physical Chemistry-IV (MCQ)

---

1. Atomic Structure

1. A subatomic particle which has unit negative charge and negligible mass is called as ----------
   a) proton **b) electron** c) neutron d) Hydrogen atom
2. A subatomic particle which has unit positive charge and one unit mass is called as ----------
   a) proton b) electron c) neutron d) Hydrogen atom
3. A subatomic particle which has zero charge and one unit mass is called as ----------
   a) proton b) electron **c) neutron** d) Hydrogen atom
4. In Hydrogen spectra, Lyman series is obtained when electron jumps from higher energy level to ----------
   a) 1 st energy level b) 2 nd energy level c) 3 rd energy level d) 4 th energy level
5. In Hydrogen spectra, Balmer series is obtained when electron jumps from higher energy level to ----------
   a) 1 st energy level **b) 2 nd energy level** c) 3 rd energy level d) 4 th energy level
6. In Hydrogen spectra, Paschen series is obtained when electron jumps from higher energy level to ----------
   a) 1 st energy level b) 2 nd energy level **c) 3 rd energy level** d) 4 th energy level
7. In Hydrogen spectra, Brackett series is obtained when electron jumps from higher energy level to ----------
   a) 1 st energy level b) 2 nd energy level c) 3 rd energy level **d) 4 th energy level**
8. In Hydrogen spectra, Pfund series is obtained when electron jumps from higher energy level to ----------
   a) 1 st energy level b) 3 rd energy level **c) 5 th energy level** d) 4 th energy level
9. In Hydrogen spectra, Lyman series lies in ----------
   a) ultra-violet region b) visible region c) Infrared region d) None of these
10. In Hydrogen spectra, Balmer series lies in ----------
    a) ultra-violet region **b) visible region** c) Infrared region d) None of these
11. In Hydrogen spectra, Paschen series lies in ----------
    a) ultra-violet region b) visible region **c) Infrared region** d) None of these
12. In Hydrogen spectra, Brackett series lies in ----------
    a) ultra-violet region b) visible region **c) Infrared region** d) None of these
13. In Hydrogen spectra, Pfund series lies in ----------
    a) ultra-violet region b) visible region **c) Infrared region** d) None of these
14. The maximum number of electrons in an orbit is ----------

a) n^2 b) 2 n **c) 2 n^2** d) 2 n + 1

15. The maximum numbers of electrons in a subshell is given by ----------

a) $2n^2$ b) 2 (l + 1) c) 2 l +1 **d) 2 (2 l + 1)**

16. The radius of Bohr orbit is proportional to ----------

a) n^2 b) n c) 2 n^2 d) $\frac{1}{n^2}$

17. The energy of an electron in an orbit is proportional to ----------

a) n^2 b) n c) 2 n^2 **d)** $\frac{1}{n^2}$

18. Cathode rays are deflected by ----------

a) Electric field b) Magnitc field **c) Electric & Magnitc field** d) None of these.

19. ---------- is electrically neutral particle carrying one unit mass.

a) proton b) electron **c) neutron** d) Hydrogen atom

20. The atomic number of an element is equal to the number of---------- in the nucleus of atom

a) proton b) electron c) neutron & proton d) neutron

21. In Bohr's atomic model, the angular momentum of an electron is given by ----------

a) $mvr = \frac{h}{2\pi}$ b) $mvr = \frac{nh}{4\pi}$ c) $mvr = \frac{h}{2n\pi}$ **d)** $\mathbf{mvr = \frac{nh}{2\pi}}$

22. According to Bohr's atomic model, the radius of orbit is given by ----------

a) $r = \frac{nh^2}{4\pi^2 me^2}$ **b)** $\mathbf{r = \frac{n^2h^2}{4\pi^2 me^2}}$ c) $r = \frac{n^2h^2}{4\pi^2 me}$ d) $r = \frac{n^2h^2}{4\pi me^2}$

23. The radius of first Bohr orbit is 0.529 A°, the radius of second Bohr orbit is ----------

a) 1 x 0.529 A° b) 2 x 0.529 A° c) 3 x 0.529 A° **d) 4 x 0.529 A°**

24. The energy of an electron in n th orbit is given by ----------

a) $\mathbf{E = -\frac{2\pi^2 me^4}{n^2h^2}}$ b) $E = -\frac{4\pi^2 me^4}{n^2h^2}$ c) $E = -\frac{2\pi^2 me^2}{n^2h^2}$ d) $E = -\frac{4\pi^2 me^2}{n^2h^2}$

25. Principle quantum number (n) represents ----------

a) average size of the electron cloud b) average energy of the electron

c) average distance of electron from nucleus **d) all of these**

26. The shape of orbital occupied by the electron is given by ----------

a) Principle quantum number **b) Azimuthal quantum number**

c) Magnetic quantum number d) Spin quantum number

27. "No two electrons in an atom can have the same set of all four identical quantum numbers" this is statement of ----------

a) Aufbau principle b) Hund's rule **c) Pauli's exclusion principle** d) None of these

28. The distribution of electrons among the orbitals of a subshell is given by ----------

a) Aufbau principle **b) Hund's rule** c) Pauli's exclusion principle d) None of these

29. Two electrons occupying the same orbitals have different ----------

a) Principle quantum number b) Azimuthal quantum number

c) Magnetic quantum number **d) Spin quantum number**

30. "The electrons in various orbitals are arranged according to their increasing order of energy" is statement of ----------

a) Aufbau principle b) Hund's rule c) Pauli's exclusion principle d) None of these

31. In hydrogen spectrum, the series which falls in ultra-violet region is ----------

a) Balmer series **b) Lyman series** c) Paschen series d) Brackett series

32. The total number of Magnetic quantum number for a given value of Azimuthal quantum is

a) 2 l b) 2 l − 1 **c) 2 l + 1** d) 2 l + 2

33. The energy of an electron in Bohr's atom ---------- as we move away from the nucleus.

a) Increases b) decreases c) Remains the same d) None of these

34. The quantum number which accounts for the splitting ofspectral lines is ----------

a) Principle quantum number b) Azimuthal quantum number

c) Magnetic quantum number d) Spin quantum number

35. The angular momentum of the electron is defined by the quantum number ----------

a) n **b) l** c) m d) s

36. The Principle quantum number (n) is related to the ----------

a) Orbital angular momentum b) shape and size of orbital

c) Orientation of orbital **d) Average size of orbital**

37. The energy of an electron in Bohr's first orbit is − 13.6 eV. The energy of the n = 3 level corresponds to ----------

a) − 4.53 eV b) 2.26 eV **c) − 1.51 eV** d) None of these

38. The two electrons in the first shell will differ in the values of ----------

a) n b) l c) m **d) s**

39. If the value of Azimuthal quantum number l = 2, then the value of magnetic quantum numbers (m) are ----------

a) 2 b) 3 c) 4 **d) 5**

2. Liquid State

1. The unit of surface tension is ----------

a) dyne cm^{-1} b) dyne cm c) $dyne^{-1}$ cm d) $dyne^{-1}$ cm^{-1}

2. With the rise in temperature, the surface tension of liquid is ----------

a) Increases **b) decreases** c) remains same d) None of these

3. The formula used for the determination of surface tension of liquid using number drop method (stalgnometer) is ----------

a) $\frac{\gamma_1}{\gamma_2} = \frac{n_1 d_1}{n_2 d_2}$ b) $\frac{\gamma_1}{\gamma_2} = \frac{n_1 d_2}{n_2 d_1}$ **c)** $\mathbf{\frac{\gamma_1}{\gamma_2} = \frac{n_2 d_1}{n_1 d_2}}$ d) $\frac{\gamma_1}{\gamma_2} = \frac{n_2 d_2}{n_1 d_1}$

4. The formula used for the determination of surface tension of liquid using drop weight method (stalgnometer) is ----------

a) $\frac{\gamma_1}{\gamma_2} = \frac{{m_1}^2}{{m_2}^2}$ b) $\frac{\gamma_1}{\gamma_2} = \frac{m_2}{m_1}$ c) $\frac{\gamma_1}{\gamma_2} = \frac{{m_2}^2}{{m_1}^2}$ **d)** $\mathbf{\frac{\gamma_1}{\gamma_2} = \frac{m_1}{m_2}}$

5. Viscosity of liquid is a measure of ----------

a) Inter molecular forces between molecules **b) Frictional resistance**

c) repulsive forces between the liquid molecules d) None of these

6. The reciprocal of Viscosity is called as ----------

a) Frictional resistance b) surface tension **c) fluidity** d) None of these

7. As the temperature increases the viscosity of liquid is ----------

a) Increases **b) decreases** c) remains same d) None of these

8. The unit of viscosity is ----------

a) gm cm^{-1} s^{1} b) kg m^{-1} s^{1} c) poise **d) All of these**

9. The density of liquid is expressed in ----------

a) gm cm **b) gm cm^{-3}** c) gm cm^{-2} d) gm cm^{-1}

10. The S.I. unit of viscosity is ----------

a) kg cm^{-1} s^{1} b) kg m^{-2} s^{1} **c) kg m^{-1} s^{-1}** d) kg m^{-1} s^{1}