NEET CHEMISTRY PRACITCE PAPER

Time : 60 Mins **4 CLASSIFICATION OF ELEMENTS AND PERIODICITY IN PROPERTIES 1** **Marks : 200**

1. Which of the following is not correct statement for periodic classification of elements?
   a) The properties of elements are the periodic functions of their atomic number.
   b) Non-metallic elements are less in number than metallic elements.
   c) For transition elements, the last electron enters into (n - 2) d-subshell. d) None of these
2. Which of the following pairs has elements containing same number of electrons in the outermost orbit?
   a) N, O b) Na, Ca c) As, Bi d) Pb, Sb
3. Among, the elements Ca, Mg, P and Cl, the order of increasing atomic radii is
   a) Ca b) Mg c) Cl d) P
4. Match the column I with column II and mark the appropriate choice.

Column I		Column II	
(A)	3d-transition series	(i)	Z = 58 to Z = 71
(B)	Lanthanoid series	(ii)	Z = 39 to Z = 48
(C)	Actinoid series	(iii)	Z = 21 to Z = 30
(D)	4d-transition series	(iv)	Z = 90 to Z = 103

   a) (A) ⟶ (i), (B) ⟶ (ii), (C) ⟶ (iii), (D) ⟶ (iv) b) (A) ⟶ (ii), (B) ⟶ (iii), (C) ⟶ (iv), (D) ⟶ (i)
   c) (A) ⟶ (iii), (B) ⟶ (i), (C) ⟶ (iv), (D) ⟶ (ii) d) (A) ⟶ (iv), (B) ⟶ (iii), ⟶ (C) (i), (D) ⟶ (ii)
5. Which of the following properties increases across a period:
   a) Reducing property b) Size of atom c) Acidic nature of oxides d) Metallic property
6. Assertion: Shielding effect increases as we go down the group.
   Reason: More is the number of electrons in the penultimate shell, more is the shielding.
   a) If both assertion and reason are true and reason is the correct explanation of assertion.
   b) If both assertion and reason are true but reason is not the correct explanation of assertion.
   c) If assertion is true but reason is false. d) If both assertion and reason are false.
7. Similarity in the radius of Zr and Hf is explained on the basis of
   a) Lanthanide contraction b) Inert pair effect c) Same outershell configuration
   d) Anomalous configuration
8. The C-C single bond length is 1.54A° and that of Cl-Cl is 1.98A°. If the elcctroncgativity of Cl and C are 3.0 and 2.5 respectively, the C-Cl bond-length will be equal to
   a) 3.12A° b) 1.67A° c) 1.71A° d) 2.12A°
9. Assertion: The atomic size generally increases across a period and decreases down the group.
   Reason: Atomic size depends upon valence shell electronic configuration.
   a) If both assertion and reason are true and reason is the correct explanation of assertion.
   b) If both assertion and reason are true but reason is not the correct explanation of assertion.
   c) If assertion is true but reason is false. d) If both assertion and reason are false.
10. An element 'P' has atomic number 56. What will be the formula of its halide?
    a) PX b) PX_2 c) PX_3 d) P_2X_3
11. Which of the following orders of ionic radii is correctly represented?
    a) $H^- > H^+ > H$ b) $Na^+ > F^- > O^{2-}$ c) $F^- > O^{2-} > Na^+$ d) all are wrong
12. Which of the following statements related to the modem periodic table is incorrect?

a) The p-block has 6 vertical columns, i.e., groups b) The d-block has 8 vertical columns
c) Each block contains a number of columns equal to the number of electrons that can occupy that subshell
d)
The block indicates value of azimuthal quantum number (l) for the last subshell that received electrons in building up the electronic configuration

13. The correct order of radii is :
a) N < Be < B b) $Mg^{2+} < Li^{+} < N^{3-}$ c) Na < Li < K d) $Fe^{+3} < Fe^{2+} < Fe^{4+}$

14. Fill in the blanks by picking the correct option.
There are _____ groups and _____ periods in the extended form of periodic table. The group, all members of which are in gaseous state under ordinary conditions is_____ group. Most electropositive elements belong to _____ group.
a) 16, 8, 17, 2 b) 18, 7, 18, 1 c) 8, 7, 0, 2 d) 16, 8, 18, 1

15. Electron affinity of Fluorine is less than that of Chlorine because
a) Electronegativity of Fluorine is more b) 2p sub shell of F is smaller c) Chlorine is a stronger oxidant
d) Bond dissociation energy of F_2 is less

16. The starting element of fifth period is:
a) K b) Rb c) Kr d) Xe

17. Which of the following sequence regarding ionisation potential of coinage metal is correct?
a) Cu > Ag > Au b) Cu < Ag < Au c) Cu > Ag < Au d) Ag > Cu

18. Examples of elements belonging to s,p,d or f-block are given below. Identify the wrong example.
a) s-block element - Caesium b) p-block element - Barium c) d-block element - Chromium
d) f-block element - Thorium

19. Atomic number of Ag is 47. In the same group the atomic number of elements placed above and below Ag in Long form of periodic table will be:
a) 37, 67 b) 29, 79 c) 39, 69 d) 18, 28

20. The electronic configurations of four elements are given below. Which element does not belong to the same family as others?
a) [Xe] $4f^{14}$, $5d^{10}$, $6s^2$ b) [Kr] $4d^{10}$, $5s^2$ c) [Ne] $3s^2 3p^5$ d) [Ar] $3d^{10}$, $4s^2$

21. The plot of $\sqrt{v}$ vs Z is
a) Straight line b) Exponential curve c) Hyperbolic d) Curve with -ve slope

22. Identify the correctly matched set among the following
a) Scandium-d-block-representative element b) Lanthanum-d-block-innertransition element
c) Cerium-f-block-transition element d) Actinium-d-block-transition element

23. $N_0/2$ atoms of X(g) are converted into X^{+}(g) by energy E_1.$N_0/2$ atoms of X(g) are converted into X^{-}(g) by the energy E_2. Hence ionisation potential and electron affinity of X(g) are:
a) $\frac{2E_1}{N_0}, \frac{2(E_1 - E_2)}{N_0}$ b) $\frac{E_1}{N_0}, \frac{2E_2}{N_0}$ c) $\frac{2(E_1 - E_2)}{N_0}, \frac{2E_2}{N_0}$ d) $\frac{2E_1}{N_0}, \frac{2E_2}{N_0}$

24. The correct order of negative electron gain enthalpy is:
a) Cl < F b) F < Br c) S < O d) O < F

25. The elements with atomic numbers 90 to 103 are known as :
a) d-block elements b) lanthanides c) actinides d) transition elements

26. Which is the most electropositive element?
a) Na b) Cu c) Cs d) Ca

27. Assertion: For the element O or F, the electron gain enthalpy is less negative than that of the succeeding element.
    Reason: Electron gain enthalpy becomes less negative as we go down a group.
    a) If both assertion and reason are true and reason is the correct explanation of assertion.
    b) If both assertion and reason are true but reason is not the correct explanation of assertion.
    c) If assertion is true but reason is false. d) If both assertion and reason are false.
28. Which of the following is the atomic number of a metal?
    a) 35 b) 34 c) 36 d) 38
29. In a given energy level, the order of penetration effect of different orbitals is:
    a) f < d < p < s b) s = p = d = f c) s < p < d < f d) P > s > d> f
30. Anomalous pair among the following is
    a) Boron - Silicon b) Beryllium - Indium c) Aluminium - Gallium d) Cobalt - Nickel
31. Which of tire following sets has strongest tendency to form anions
    a) Ga, In, Tl b) Na, Mg, Al c) N,O, F d) V,Cr,Mn
32. If electro negativity of x be 3.2 and that of y be 2.2, the percentage ionic character of xy is
    a) 19.5 b) 18.5 c) 9.5 d) 29.5
33. Which of the following series of elements have nearly the same atomic radii?
    a) F, Cl, Br, I b) Na, K, Rb, Cs c) Li, Be, B, C d) Fe, Co, Ni, Cu
34. Indicate the wrong statement on the basis of the periodic table.
    a) The most electronegative element in the periodic table is fluorine
    b) Scandium is the first transition element and belongs to fourth period.
    c) There are four transition series in the periodic table each containing 10 elements.
    d) Along a period halogens have maximum negative electron gain enthalpy.
35. Which of the following oxides is neutral in nature?
    a) SrO b) Al_2O_3 c) CO_2 d) CO
36. The characteristic properties of transition elements are due to
    a) Unpaired electrons in d-sub shell b) d-orbitals have five fold degeneracy
    c) Presence of 2 nodal planes for d-orbital d) Because they belong to d-block
37. The longest and shortest periods are
    a) 1 & 6 b) 2 & 6 c) 6 & 1 d) 1 & 7
38. Match the columns I, II and III and mark the appropriate choice.

	Colum I		Colum II		Colum III
(A)	Bromine	(i)	Noble metal	(p)	Amalgam
(B)	Gold	(ii)	Crystalline non-metal	(q)	$4s^2\ 4p^5$
(C)	Mercury	(iii)	Liquid non-metal	(r)	Transition metal
(D)	Iodine	(iv)	Liquid metal	(s)	Violet

    a) (A)→(iii, q); (B)→(i, r), (C)→(iv, p); (D)→(ii, s) b) (A)→(ii, p); (B)→(i, s), (C)→(iii, q); (D)→(iv, r)
    c) (A)→(i, s), (B)→(ii, p); (C)→(iv, r), (D)→(iii, q) d) (A)→(iv, r), (B)→(iii, q): (C)→(ii, s): (D)→(i, p)
39. An increase in both atomic and ionic radii with atomic number occurs in any group of the periodic table and in accordance with this the ionic radii of Tiny) and Zr(IV) ions are 0.68A° and 0.74A° respectively; but for Hf(IV) ion, the ionic radius is O. 75A°, which is almost the same as that for Zr(IV) ion. This is due to
    a) Greater degree of covalency in compounds of Hf^{4+} b) Lanthanide contraction c) Actinide contraction
    d) Difference in co-ordination number of Zn^{4+} and Hf^{4+} in their compounds
40. The stability of +1 oxidation state among Al, Ga, In and Tl increases in the sequence:

a) Tl < In < Ga < Al b) In < Tl < Ga < Al c) Ga < In < Al < Tl d) Al < Ga < In < Tl

41. The oxidation state of an element in a particular compound can be defined as
    a)
    the charge acquired by its atom on the basis of electronegative consideration from other atoms in the molecule
    b) the residual charge acquired by its atom after removing all electronegative atoms from the molecule
    c) the valency of the most electronegative atom present in the molecule
    d) total number of electrons accepted by an atom to form a molecule.
42. Which of the following is true regarding inert pair effect
    a) due to poor shielding of p orbital b) due to poor shielding of d & f orbital
    c) due to poor shielding of s orbital d) due to poor shielding of s & p orbital
43. The lanthanides contraction refers to
    a) radius of the series b) valence electrons of the series c) the density of the series
    d) electronegativity of the series
44. In which of the following, the order is not in accordance with the property mentioned?
    a) Li < Na < K < Rb - Atomic radius b) F > N > O > C - Ionisation enthalpy
    c) Si < P < S < Cl- Electronegativity d) F < Cl < Br < I - Electronegativity
45. Atomic numbers of actinides are
    a) 57 to 71 b) 80 to 103 c) 58 to 71 d) 90 to 103
46. The elements in which electrons are progressively filled in 4f orbital are called
    a) actinoids b) transition elements c) lanthanoids d) halogens
47. The element with the atomic number 118, will be :
    a) alkali b) noble gas c) lanthanide d) transition element
48. In which of the following pairs of species, the size of the first species is not more than the second species?
    a) Na^+,F^- b) Fe^{2+},Fe^{3+} c) Li, F d) S, O
49. The element with the atomic number 118, will be
    a) alkali b) noble gas c) lanthanide d) transition element
50. The size of the following species increases in the order:
    a) $Mg^{2+} < Na^+ < F^- <$ Al b) $Al^{3+} < Mg^{2+} < Na^+ < F^-$ c) $Na^+ < F^- < Al^{3+} < Mg^{2+}$ d) $Na^+ < Al^{3+} < Mg^{2+} < F^-$