1. The correct order of atomic or ionic size :
(1) $N < Li < B$ (2) $Cl < Mg < Ca$
(3) $Ca^{+2} < S^{-2} < Cl^-$ (4) $Na^+ < Mg^{+2} < Cl^-$

2. The ionization energy will be maximum for the process :
(1) $Ba \rightarrow Ba^+$ (2) $Be \rightarrow Be^+$
(3) $Cs \rightarrow Cs^+$ (4) $Li \rightarrow Li^+$

3. Of the following elements, which possesses the highest electron affinity?
(1) As (2) O (3) S (4) Se

4. On the Pauling's electronegativity scale, which element is next to F ?
(1) Cl (2) O (3) Br (4) Ne

5. Calculate the bond length of C–X bond if C – C bond length is 1.54 Å and X–X bond length is 1.2 Å and electronegativities of C and X are 2.0 and 3.0 respectively.
(1) 2.74 Å (2) 1.37 Å
(3) 1.46 Å (4) 1.28 Å

6. Which of the following element has highest metallic character ?

	Element	IP
(1)	P	17 eV
(2)	Q	2 eV
(3)	R	10 eV
(4)	S	13 eV

7. The ionic radius of Cr is minimum in which of the following compounds ?
(1) CrF_3 (2) $CrCl_3$ (3) Cr_2O_3 (4) K_2CrO_4

8. The IP_1, IP_2, IP_3, IP_4 and IP_5 of an element are 7.1, 14.3, 34.5, 46.8, 162.2 eV respectively. The element is likely to be:-
(1) Na (2) Si (3) F (4) Ca

9. $M(g) \longrightarrow M^+(g) + e^-$, $\Delta H = 100$ eV
$M(g) \longrightarrow M^{2+}(g) + 2e^-$, $\Delta H = 250$ eV
Which is incorrect statement ?
(1) IE_1 of M(g) is 100 eV
(2) IE_1 of $M^+(g)$ is 150 eV
(3) IE_2 of M(g) is 250 eV
(4) IE_2 of M(g) is 150 eV

10. Which of the following pairs of elements have almost similar atomic radii ?
(1) Zr, Hf (2) Mo, W (3) Co, Ni (4) All

11. In the given process which oxidation state is more stable ?

$M_{(g)} \longrightarrow M_{(g)}^+$ $IE_1 = 7.9$ eV

$M_{(g)}^+ \longrightarrow M_{(g)}^{+2}$ $IE_2 = 15.5$ eV

(1) M^+ (2) M^{+2} (3) Both (4) None

12. Which arrangement represents the correct order of electron gain enthalpy (with negative sign) of the given atomic species ?
(1) $S < O < Cl < F$ (2) $O < S < F < Cl$
(3) $Cl < F < S < O$ (4) $F < Cl < O < S$

13. Electronegativity scale of pauling is based upon :-
(1) Bond length (2) Bond energy
(3) Atomic radius (4) Covalent radius

14. The element having electronic configuration $4f^{14}\ 5d^0\ 6s^2$ belongs to :-
(1) d–block, 12th group
(2) f–block, III B group
(3) f–block, 14th group
(4) s–block, 2nd group

15. K^+, Ar, Ca^{2+} and S^{2-} contains -
(1) Same electronic configuration and atomic volume
(2) Different electronic configuration but same IP.
(3) Same electronic configuration but different atomic volume
(4) None

16. The radius of potassium atom is 0.203 nm. The radius of the potassium ion in nanometer will be :–
(1) 0.133 (2) 0.231
(3) 0.234 (4) 0.251

17. The covalent and vander Waal's radii of hydrogen respectively are :-
(1) 0.37 Å, 0.8 Å (2) 0.37 Å, 0.37 Å
(3) 0.8 Å, 0.8 Å (4) 0.8 Å, 0.37 Å

18. The element having highest I.P. from the two series C, N, O and Si, P, S :–
(1) P (2) N (3) S (4) O

19. In which of the following pairs, the ionisation energy of the first species is less than that of the second ?
(1) N, P (2) Be^+, Be
(3) N, N^- (4) Ne, Ne^+

20. IE_1 , IE_2 and IE_3 of an element are 10 eV, 15 eV, 45 eV respectively, the most stable oxidation state of the element will be :-

(1) + 1 (2) + 2 (3) + 3 (4) + 4

21. Which of the following is energy releasing process?

(1) $X^- \rightarrow X(g) + e^-$

(2) $O^-(g) + e^- \rightarrow O^{2-}$

(3) $O(g) \rightarrow O^+(g) + e^-$

(4) $O(g) + e^- \rightarrow O^-(g)$

22. Among the following least and most polar bonds are respectively :-

(a) C – I (b) N – O (c) C – F (d) P – F

(1) d and c (2) a and d

(3) b and d (4) b and c

23. Which compound strongly absorb CO_2 ?

(1) BeO (2) K_2O

(3) H_3PO_4 (4) P_4O_6

24. Which of the following is different from other three oxides ?

(1) MgO (2) SnO (3) PbO (4) ZnO

25. $_{92}U$ (IIIB) changes to $_{90}Th$ by emission of α–particle. Daughter element will be in –

(1) IB (2) IIA (3) IIIB (4) VB

26. The IE_1 & IE_2 of three elements A, B & C are given as (IE in KJ/mol).

	A	B	C
IE_1	400	550	1150
IE_2	2650	1070	2090

Identify the element which represent a non-metal:-

(1) A (2) B

(3) Both A & B (4) C

27. The pair of amphoteric hydroxide is

(1) $Al(OH)_3$, LiOH

(2) $Be(OH)_2$, $Mg(OH)_2$

(3) $B(OH)_3$, $Be(OH)_2$

(4) $Be(OH)_2$, $Zn(OH)_2$

28. Which process requires maximum energy ?

(1) $Na(g) \rightarrow Na^+(g) + e^-$

(2) $Al^{+3}(g) \rightarrow Al^{+4}(g) + e^-$

(3) $Al^{+2}(g) \rightarrow Al^{+3}(g) + e^-$

(4) $Na^+(g) \rightarrow Na^{+2}(g) + e^-$

29. Highest electron affinity observe in :-

(1) $2s^22p^5$ (2) $2s^22p^4$

(3) $2s^22p^3$ (4) $2s^22p^1$

30. Ionization potential of Na equals to the :-

(1) Electron affinity of Na^+

(2) Electronegativity of Na^+

(3) Electron affinity of He

(4) Ionization potential of Mg

ANSWER KEY — Exercise-I

Que.	1	2	3	4	5	6	7	8	9	10
Ans.	**2**	**2**	**3**	**2**	**4**	**2**	**4**	**2**	**3**	**4**
Que.	11	12	13	14	15	16	17	18	19	20
Ans.	**2**	**2**	**2**	**2**	**3**	**1**	**1**	**2**	**4**	**2**
Que.	21	22	23	24	25	26	27	28	29	30
Ans.	**4**	**2**	**2**	**1**	**3**	**4**	**4**	**2**	**1**	**1**