RAG	CE # 8	PE	RIODIC TABLE	CHEMISTRY		
Ionis	sation energy					
1.	The first four ionisation energy values of an element are 191, 578, 872 and 5962 kcal. The number of valence electrons in the element is					
	(A) 1	(B) 2	(C) 3	(D) 4		
2.	The correct order of ionisation energy of C,N, O, F is					
	(A) $F < N < C < O$	(B) $C < N < O < F$	(C) C < O < N < F	(D) $F < O < N < C$		
3.	The ionisation energy of nitrogen is more than that of oxygen because					
	(A) Nitrogen has half filled p-orbitals					
	(B) Nitrogen is left to the oxygen in the same period of the periodic table					
	(C) Nitrogen contains less number of electrons					
	(D) Nitrogen is less electronegative					
4.	Select correct about first ionization energy :					
	(A) Be > B	(B) $Be^+ > B^+$	(C) $B^+ < C^+$	(D) $B > C$		
5.	Select correct about	first ionization energy :				
	(A) $Zn > Cu$	(B) $Cu > Zn$	(C) $Zn > Ga$	(D) $Ga > Zn$		
6.	Correct orders of I st I.P. are :-					
	(a) $\text{Li} < \text{B} < \text{Be} < \text{C}$	(b) $O < N < F$	(c) Be $<$ N $<$ Ne			
	(A) a, b	(B) b, c	(C) a, c	(D) a, b, c		
7.	IP_1 and IP_2 of Mg are 178 and 348 K. cal mol ⁻¹ . The enthalpy required for the reaction Mg \rightarrow Mg ²⁺ + 2e ⁻ is :-					
	(A) + 170 K.cal	(B) + 526 K.cal	(C) – 170 K.cal	(D) – 526 K.cal		
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					
	(A) Na	(B) Si	(C) F	(D) Ca		
9.	Which of the follow	ing has 2 nd IP < I st IP				
	(A) Mg	(B) Ne	(C) C	(D) None of these		
10.	The first (IE_1) and second (IE_2) ionization energies (kJ/mol) of a few elements designated by Roman nume given below. Which of these would be an alkali metal ?			lements designated by Roman numerals are		
	IE_1	IE_2	IE ₁	IE_2		
	(A)I 2372	5251	(B) II 520	7300		
	(C) III 900	1760	(D) IV 1680	3380		
11.	Which of the following reaction correctly represent second ionization energy of atom magnesium :					
	(A) $Mg_{(s)} \longrightarrow Mg_{(g)}^{+2} + 2e^{-1}$		(B) $Mg_{(g)} \longrightarrow Mg_{(g)}$	(B) $Mg_{(g)} \longrightarrow Mg_{(g)}^{+2} + 2e^{-}$		
	(C) $Mg_{(g)}^{+} \longrightarrow Mg_{(g)}^{+2} + e^{-}$		(D) $Mg_{(g)}^{+2} \longrightarrow Mg_{(g)}^{+2}$	(D) $Mg^{+2}_{(g)} \longrightarrow Mg^{+3}_{(g)} + e^{-}$		
12.	The ionisation energy of B and Al as compared to Be and Mg are					
	(A) Lower	(B) Higher	(C) Equal	(D) None of these		

- 13. Element X, Y and Z have atomic numbers 19, 37 and 55 respectively. Which of the following statements is true:(A) Their ionisation potential would increase with the increasing atomic number
 - (B) 'Y' would have an ionisation potential in between those of 'X' and 'Z'
 - (C) 'Z' would have the highest ionisation potential
 - (D) 'Y' would have the highest ionisation potential
- 14. Which of the following information is not specific for one element in periodic table :
 - (A) Atom in which one electron is present in outer most shell and helium gas configuration in penultimate shell.
 - (B) Atom which have maximum ionization energy (IE_1) .
 - (C) Atom which have full filled 2nd principal energy level but other higher energy levels are vacant.
 - (D) Atom which have higher value of IE_2 as compared to IE_1 .
- 15. Consider the following changes :
 - 1. $M(s) \longrightarrow M(g)$ 2. $M(s) \longrightarrow M^{2+}(g) + 2e^{-1}$
 - 3. $M(g) \longrightarrow M^+(g) + e^-$ 4. $M^+(g) \longrightarrow M^{2+}(g) + e^-$

5. M(g)
$$\longrightarrow$$
 M²⁺(g) + 2e⁻

The second ionization energy of M could be calculated from the energy values associated with :

(A) 1 + 3 + 4 (B) 2 - 1 + 3 (C) 1 + 5 (D) 5 - 3

16. Incorrect order of ionisation energy is :-

(A) Pb (I.E.) > Sn (I.E.)(B) $Na^+(I.E.) > Mg^+(I.E.)$ (C) $Li^+(I.E.) < O^+(I.E.)$ (D) $Be^+(I.E.) < C^+(I.E.)$

17. The electronic configuration of some neutral atoms are given below :-

(A) $1s^2 2s^1$ (B) $1s^2 2s^2 2p^3$ (C) $1s^2 2s^2 2p^5$ (D) $1s^2 2s^2 2p^6 3s^1$

In which of these electronic configuration would you expect to have highest :-

(A) C, A	(B) B, A	(C) C, B	(D) B, D
(i) IE ₁	(ii) IE ₂		

SUBJECTIVES

- 18. The IE do not follow a regular trend in II & III periods with increasing atomic number. Why?
- **19.** The IE values of Al (g) \rightarrow Al⁺(g) + e⁻ is 577.5 kJ mol⁻¹ and Δ H for Al(g) \rightarrow Al³⁺ (g) +3e⁻ is 5140 kJ mol⁻¹. If second and third IE values are in the ratio 2 : 3. Calculate IE₂ and IE₃.

Similar questions beloNgs to NCERT Text Book

Problem - 3.5, 3.6

Excercise - 3.12, 3.17, 3.19, 3.16, 3.31

Answers

RACE # 08

- 1. (C) 2. (C) 3. (A) 4. (A) 5. (AC) 6. (D) 7. (B) 8. (B) 9. (D) 10. (B)
- 11. (C) 12. (A) 13. (B) 14. (D) 15. (D) 16. (C) 17. (A)
- **19.** $IE_2 = 1825 \text{ kJ/mol}$, $IE_3 = 2737.5 \text{ kJ/mol}$