DPP - Daily Practice Problems

Chapter-wise Sheets

Date : Start Time : End Time :

CHEMISTRY CC03

SYLLABUS : Classification of Elements and Periodicity in Properties

Max. Marks : 180 **Marking Scheme :** + 4 for correct & (–1) for incorrect **Time : 60 min.**

INSTRUCTIONS : This Daily Practice Problem Sheet contains 45 MCQ's. For each question only one option is correct. Darken the correct circle/ bubble in the Response Grid provided on each page.

1. Which of the following is not an actinoid ?
(a) Curium ($Z=96$) (b) Californium ($Z=98$)
(c) Uranium ($Z=92$) (d) Terbium ($Z=65$)

2. Which of the following species has lowest ionization potential?
(a) O (b) O_2 (c) O_2^+ (d) O_2^-

3. On going down a main sub-group in the periodic table (example Li to Cs in IA or Be to Ra in IIA), the expected trend of changes in atomic radius is a
(a) continuous increase
(b) continuous decrease
(c) periodic one, an increase followed by a decrease
(d) decrease followed by increase

4. Match the columns

Column-I (Compounds)		Column-II (Co-ordination number, oxidation number)	
A.	$[BF_4]^-$	I.	7,+7
B.	$[AlF_6]^{3-}$	II.	4,+4
C.	OF_2	III.	6,+3
D.	SiF_4	IV.	2,+2
E.	IF_7	V.	4,+3

(a) A – IV; B – II; C – V; D – III; E – I
(b) A – V; B – III; C – IV; D – II; E – I
(c) A – II; B – III; C – V; D – IV; E – I
(d) A – III; B – II; C – IV; D – I; E – V

5. The decreasing order of the ionization potential of the following elements is
(a) Ne > Cl > P > S > Al > Mg
(b) Ne > Cl > P > S > Mg > Al
(c) Ne > Cl > S > P > Mg > Al
(d) Ne > Cl > S > P > Al > Mg

6. The radii of F, F^-, O and O^{2-} are in the order
(a) $O^{2-} > F^- > F > O$ (b) $F^- > O^{2-} > F > O$
(c) $O^{2-} > O > F^- > F$ (d) $O^{2-} > F^- > O > F$

7. Which group of the periodic table contains coinage metal ?
(a) IIA (b) IB
(c) IA (d) None of these

RESPONSE GRID					
1. ⓐⓑⓒⓓ	2. ⓐⓑⓒⓓ	3. ⓐⓑⓒⓓ	4. ⓐⓑⓒⓓ	5. ⓐⓑⓒⓓ	
6. ⓐⓑⓒⓓ	7. ⓐⓑⓒⓓ				

Space for Rough Work

8. Which of the following statements are correct?
(i) The second period ($n = 2$) starts with lithium and third electron enters the $2s$ orbital. The next element, beryllium has four electrons and has the electronic configuration $1s^2 2s^2$. From the next element boron, the $2p$ orbitals are filled with electrons when the L shell is completed at neon ($2s^2 2p^6$). Thus there are 8 elements in the second period.
(ii) Successive filling of $3s$ and $3p$ orbitals gives rise to the third period of 8 elements from sodium to argon.
(iii) The fourth period ($n = 4$) starts at potassium and the added electron fill up the first $4s$ and $4p$ orbitals than $3d$ orbital is filled.
(iv) Fifth period begins with rubidium with the filling of $5s$ orbital and ends at xenon with the filling up of the $5p$ orbital.
(a) (i) and (ii) (b) (i), (ii) and (iii)
(c) (iii) and (iv) (d) (i), (ii) and (iv)

9. Which ionisation potential (IP) in the following equations involves the greatest amount of energy ?
(a) $Na \rightarrow Na^+ + e^-$ (b) $K^+ \rightarrow K^{2+} + e^-$
(c) $C^{2+} \rightarrow C^{3+} + e^-$ (d) $Ca^+ \rightarrow Ca^{2+} + e^-$

10. Which of the following arrangements represents the increasing order (smallest to largest) of ionic radii of the given species O^{2-}, S^{2-}, N^{3-}, P^{3-}?
(a) $O^{2-} < N^{3-} < S^{2-} < P^{3-}$ (b) $O^{2-} < P^{3-} < N^{3-} < S^{2-}$
(c) $N^{3-} < O^{2-} < P^{3-} < S^{2-}$ (d) $N^{3-} < S^{2-} < O^{2-} < P^{3-}$

11. Which of the following series correctly represents relations between the elements from X to Y?
$X \rightarrow Y$
(a) ${}_3Li \rightarrow {}_{19}K$ Ionization enthalpy increases
(b) ${}_9F \rightarrow {}_{35}Br$ Electron gain enthalpy (negative sign) increases
(c) ${}_6C \rightarrow {}_{32}Ge$ Atomic radii increases
(d) ${}_{18}Ar \rightarrow {}_{54}Xe$ Noble character increases

12. The formation of the oxide ion $O^{2-}(g)$, from oxygen atom requires first an exothermic and then an endothermic step as shown below :
$O(g) + e^- \rightarrow O^-(g)$; $\Delta_f H^\ominus = -141\ kJmol^{-1}$
$O^-(g) + e^- \rightarrow O^{2-}(g)$; $\Delta_f H^\ominus = +780\ kJ\ mol^{-1}$
Thus process of formation of O^{2-} in gas phase is unfavourable even though O^{2-} is isoelectronic with neon. It is due to the fact that
(a) Electron repulsion outweighs the stability gained by achieving noble gas configuration
(b) O^- ion has comparatively smaller size than oxygen atom
(c) Oxygen is more electronegative
(d) Addition of electron in oxygen results in larger size of the ion.

13. In any period the valency of an element with respect to oxygen
(a) Increases one by one from IA to VIIA
(b) Decreases one by one form IA to VIIA
(c) Increases one by one from IA to IVA and then decreases from VA to VIIA one by one
(d) Decreases one by one from IA to IVA and then increases from VA to VIIA one by one

14. An element having electronic configuration
$1s^2 2s^2 2p^6 3s^2 3p^6 4s^1$ forms
(a) Acidic oxide (b) Basic oxide
(c) Amphoteric oxide (d) Neutral oxide

15. Which of the following order is wrong?
(a) $NH_3 < PH_3 < AsH_3$ —Acidic
(b) $Li < Be < B < C$ — IE_1
(c) $Al_2O_3 < MgO < Na_2O < K_2O$ — Basic
(d) $Li^+ < Na^+ < K^+ < Cs^+$ — Ionic radius

16. The first ionisation potential of aluminium is smaller than that of magnesium because
(a) Atomic size of Al >Atomic size of Mg.
(b) Atomic size of Al <Atomic size of Mg.
(c) Al has one electron in p - orbital
(d) None of these

17. The first ($\Delta_i H_1$) and second ($\Delta_i H_2$) ionization enthalpies (in kJ mol^{-1}) and the electron gain enthalpy ($\Delta_{eg} H$) (in kJ mol^{-1}) of the elements I, II, III, IV and V are given below

Element	$\Delta_i H_1$	$\Delta_i H_2$	$\Delta_{eg} H$
I	520	7300	−60
II	419	3051	−48
III	1681	3374	−328
IV	1008	1846	−295
V	2372	5251	+48

The most reactive metal and the least reactive non-metal of these are respectively
(a) I and V (b) III and II (c) II and V (d) IV and V

18. Consider the following statements:
(i) The discovery of inert gases later on did not disturb Mendeleev's arrangement.
(ii) In the present periodic table, periodicity in the properties of elements is related to the periodicity in their electronic configurations.
Which of these statement(s) is/are correct ?
(a) (i) only (b) (ii) only
(c) Both (i) and (ii) (d) Neither (i) nor (ii)

RESPONSE GRID					
	8. ⓐⓑⓒⓓ	9. ⓐⓑⓒⓓ	10. ⓐⓑⓒⓓ	11. ⓐⓑⓒⓓ	12. ⓐⓑⓒⓓ
	13. ⓐⓑⓒⓓ	14. ⓐⓑⓒⓓ	15. ⓐⓑⓒⓓ	16. ⓐⓑⓒⓓ	17. ⓐⓑⓒⓓ
	17. ⓐⓑⓒⓓ	18. ⓐⓑⓒⓓ			

Space for Rough Work

19. Consider the following ionization enthalpies of two elements 'A' and 'B'.

Element	Ionization	enthalpy	(kJ/mol)
	1st	2nd	3rd
A	899	1757	14847
B	737	1450	7731

Which of the following statements is correct ?
(a) Both 'A' and 'B' belong to group–1 where 'B' comes below 'A'.
(b) Both 'A' and 'B' belong to group–1 where 'A' comes below 'B'.
(c) Both 'A' and 'B' belong to group–2 where 'B' comes below 'A'.
(d) Both 'A' and 'B' belong to group–2 where 'A' comes below 'B'.

20. Sodium sulphate is soluble in water whereas barium sulphate is sparingly soluble because :
(a) the hydration energy of sodium sulphate is less than its lattice energy
(b) the lattice energy of barium sulphate is more than its hydration energy
(c) the lattice energy has no role to play in solubility
(d) the hydration energy of sodium sulphate is less than its lattice energy.

21. Which of the following is the reason for the different chemical behaviour of the first member of a group of elements in the *s*- and *p*-blocks compared to that of the subsequent members in the same group?
(i) Small size
(ii) Large charge / radius ratio
(iii) Low electronegativity of the element
(a) (i) and (iii) (b) (i), (ii) and (iii)
(c) (i) and (ii) (d) (ii) and (iii)

22. The element with outer electronic configuration $3d^6 4s^2$ is a
(a) metalloid (b) non-metal
(c) transition metal (d) noble gas

23. Which of the following statements is wrong ?
(a) van der Waal's radius of iodine is more than its covalent radius
(b) All isoelectronic ions belong to same period of the periodic table
(c) $I.E._1$ of N is higher than that of O while $I.E._2$ of O is higher than that of N
(d) The electron gain enthalpy of N is almost zero while that of P is 74.3 kJ mol^{-1}

24. Which of the following sequence correctly represents the decreasing acidic nature of oxides ?
(a) $Li_2O > BeO > B_2O_3 > CO_2 > N_2O_3$
(b) $N_2O_3 > CO_2 > B_2O_3 > BeO > Li_2O$
(c) $CO_2 > N_2O_3 > B_2O_3 > BeO > Li_2O$
(d) $B_2O_3 > CO_2 > N_2O_3 > Li_2O > BeO$

25. An atom has electronic configuration $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 3d^3\ 4s^2$, you will place it in which group?
(a) Fifth (b) Fifteenth
(c) Second (d) Third

26. In which of the following arrangements, the sequence is not strictly according to the property written against it?
(a) $CO_2 < SiO_2 < SnO_2 < PbO_2$: increasing oxidising power
(b) $NH_3 < PH_3 < AsH_3 < SbH_3$: increasing basic strength
(c) HF < HCl < HBr < HI: increasing acid strength
(d) B < C < O < N: increasing first ionisation enthalpy.

27. Which one of the following statements is incorrect ?
(a) Greater the nuclear charge, greater is the electron affinity
(b) Nitrogen has zero electron affinity
(c) Electron affinity decreases from fluorine to iodine in 17th group
(d) Chlorine has highest electron affinity

28. An element X occurs in short period having configuration $ns^2\ np^1$. The formula and nature of its oxide is
(a) XO_3, basic (b) XO_3 acidic
(c) X_2O_3, amphoteric (d) X_2O_3 basic

29. Ionic radii of
(a) $Ti^{4+} < Mn^{2+}$ (b) $^{35}Cl^- < {}^{37}Cl^-$
(c) $K^+ > Cl^{-1}$ (d) $P^{3+} > P^{5+}$

30. The ionic radii (in Å) of N^{3-}, O^{2-} and F^- are respectively :
(a) 1.71, 1.40 and 1.36 (b) 1.71, 1.36 and 1.40
(c) 1.36, 1.40 and 1.71 (d) 1.36, 1.71 and 1.40

31. Amongst H_2O, H_2S, H_2Se and H_2Te, the one with the highest boiling point is
(a) H_2O because of hydrogen bonding
(b) H_2Te because of higher molecular weight
(c) H_2S because of hydrogen bonding
(d) H_2Se because of lower molecular weight

32. Match the Column-I and Column-II and select the correct answer by given codes.

	Column-I (Elements)		**Column-II (Properties)**
A.	$Li^+ < Al^{3+} < Mg^{2+} < K^+$	I.	DEA (Electron affinity)
B.	$Li^+ > Al^{3+} > Mg^{2+} > K^+$	II.	Ionic radii
C.	Cl > F > Br > I	III.	EN (Electronegativity)
D.	F > Cl > Br > I	IV.	Effective nuclear charge

(a) A – II; B – IV; C – III; D – I
(b) A – II; B – IV; C – I; D – III
(c) A – IV; B – II; C – III; D – I
(d) A – IV; B – II; C – I; D – III

RESPONSE GRID					
	19. ⓐⓑⓒⓓ	20. ⓐⓑⓒⓓ	21. ⓐⓑⓒⓓ	22. ⓐⓑⓒⓓ	23. ⓐⓑⓒⓓ
	24. ⓐⓑⓒⓓ	25. ⓐⓑⓒⓓ	26. ⓐⓑⓒⓓ	27. ⓐⓑⓒⓓ	28. ⓐⓑⓒⓓ
	29. ⓐⓑⓒⓓ	30. ⓐⓑⓒⓓ	31. ⓐⓑⓒⓓ	32. ⓐⓑⓒⓓ	

Space for Rough Work

33. Which of the following statement(s) is/are correct ?
(i) Aluminium react with HCl to form Al^{3+} and H_2 is liberated
(ii) Aluminium dissolve in NaOH to form $NaAl(OH)_4$ and H_2
(a) (i) and(ii) (b) Only(ii)
(c) Only(i) (d) Neither (i) nor(ii)

34. Which has most stable+2 oxidation state :
(a) Sn (b) Pb (c) Fe (d) Ag

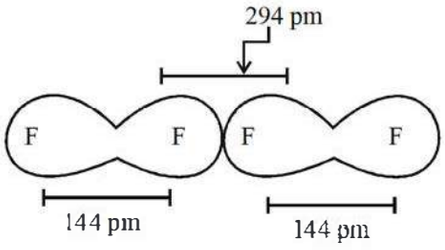
35. Match Column-I (IUPAC nomenclature of element) with Column-II (IUPAC official name).

Column-I		Column-II	
A.	Unnilhexium	I.	Lawrencium
B.	Unniltriun	II.	Dubnium
C.	Unnilunium	III.	Seaborgium
D.	Unnilpentiun	IV.	Mendelevium

(a) A – IV; B – I; C – III; D – II
(b) A – III; B – I; C – IV; D – II
(c) A – III; B – IV; C – I; D – II
(d) A – II; B – III; C – I; D – IV

36. In the Mendeleev periodic table, which of the following element instead of having lower atomic weight was placed after the element of higher atomic weight thereby ignoring the order of increasing atomic weights.
(a) Iodine (b) Antimony
(c) Bromine (d) Molybdenum

37. The van der Waal and covalent radii of fluorine atom respectively from the following figure are.



(a) 219pm, 72pm (b) 75pm, 72pm
(c) 147pm, 72pm (d) 147pm, 144pm

38. Cl, Br, I, if this is Dobereiner's triad and the atomic masses of Cl and I are 35.5 and 127 respectively the atomic mass of Br is
(a) 162.5 (b) 91.5 (c) 81.25 (d) 45.625

39. The first ionisation potential of Na is 5.1 eV. The value of electron gain enthalpy of Na^+ will be:
(a) –2.55eV (b) –5.1eV
(c) –10.2eV (d) +2.55eV

40. As we move across the second period from C to F ionisation enthalpy increases but the trend from C to F for ionisation enthalpyis C < O < N < F why it is not C < N < O < F. This is because
(a) atomic radii of O > atomic radii of N
(b) electronic configuration of N is more stable than electronic configuration of O
(c) atomic radii of N > atomic radii of O
(d) None of these

41. The electron affinity of chlorine is 3.7 eV. 1 gram of chlorine is completely converted to Cl^- ion in a gaseous state. (1 eV = 23.06 $kcalmol^{-1}$).
Energy released in the process is
(a) 4.8 kcal (b) 7.2 kcal (c) 8.2kcal (d) 2.4kcal

42. Gradual addition of electronic shells in the noble gases causes a decrease in their
(a) ionization energy (b) atomic radius
(c) boiling point (d) density

43. The formation of the oxide ion $O^{2-}_{(g)}$ requires first an exothermic and then an endothermic step as shown below

$O_{(g)} + e^- = O^-_{(g)}$ $\Delta H^\circ = -142$ $kJmol^{-1}$

$O^-(g) + e^- = O^{2-}_{(g)}$ $\Delta H^\circ = 844$ $kJmol^{-1}$

This is because
(a) O^- ion will tend to resist the addition of another electron
(b) Oxygen has high electron affinity
(c) Oxygen is more elecronegative
(d) O^- ion has comparatively larger size than oxygen atom

44. Which of the following is correct about Eka-Aluminium and Eka-Silicon ?
(a) Oxides of Eka-Aluminium is Al_2O_3 and Eka-Silicon is Si_2O_3
(b) Oxides of Eka-Aluminium is Ga_2O_3 and Eka-Silicon is GeO_2
(c) Melting point of Eka-Aluminium is lower than the melting point of Eka-Silicon
(d) Both (a) and (c)

45. Covalent radii of atoms varies in range of 72 pm to 133 pm from F to I while that of noble gases He to Xe varies from 120pm to 220pm. This is because in case of noble gases
(a) covalent radius is very large
(b) van der Waal radius is considered
(c) metallic radii is considered
(d) None of these

RESPONSE GRID					
	33. ⓐⓑⓒⓓ	**34.** ⓐⓑⓒⓓ	**35.** ⓐⓑⓒⓓ	**36.** ⓐⓑⓒⓓ	**37.** ⓐⓑⓒⓓ
	38. ⓐⓑⓒⓓ	**39.** ⓐⓑⓒⓓ	**40.** ⓐⓑⓒⓓ	**41.** ⓐⓑⓒⓓ	**42.** ⓐⓑⓒⓓ
	43. ⓐⓑⓒⓓ	**44.** ⓐⓑⓒⓓ	**45.** ⓐⓑⓒⓓ		

Space for Rough Work

1. (d)
2. (d) The additional π-molecular electron in O_2^- is added to the less stable antibonding orbital. Hence, it is easy to remove that electron from O_2^- ion. Thus I.E. (I.P.) of O_2^- is lowest.
3. (a) Continuous increase as no. of shells increases down the group.
4. (b)
5. (b) Closed shell (Ne), half filled (P) and completely filled configuration (Mg) are the cause of higher value of I.E.
6. (d)
7. (b) Cu, Ag and Au are coinage metals. They belong to group IB (*d*-block) of periodic table.
8. (d) In fourth period filling up of 3*d* orbital becomes energetically favourable before the 4*p* orbital is filled.
9. (b) $K^+ \rightarrow K^{2+} + e^-$. Since e^- is to be removed from stable configuration.
10. (a) For isoelectronic species ionic radii decreases as the charge on ion decreases. Further on moving down in a group ionic radii increases. Hence the correct order is

$$O^{2-} < N^{3-} < S^{2-} < P^{3-}$$

11. (c) On moving down a group atomic radii increases.
12. (a) Incoming electrons occupies the smaller n = 2 shell, also negative charge on oxygen (O^-) is another factor due to which incoming electron feel repulsion.
Hence electron repulsion outweigh the stability gained by achieving noble gas configuration.
13. (c)
14. (b) It is electronic configuration of alkali metal. Hence it will form basic oxide.
15. (b) The right sequence of $I.E_1$ of Li < B < Be < C.
16. (c) Al ($3s^2 p^1$) and Mg ($3s^2$). Lower energy is required to remove $3p^1$ electron than $3s^1$ electron (penetrating effect is s > p > d > f). Secondly Mg has stable electronic configuration than Al
17. (c) I represents Li, II represents K
III represents Br, I V represents I
V represents He
So, amongst these, II represents most reactive metal and V represents least reactive non-metal.
18. (c)
19. (c) Generally, the ionization enthalpies or energy increases from left to right in a period and decreases from top to bottom in a group. Several factor such as atomic radius, nuclear charge, shielding effect are responsible for change of ionization enthalpies.
Here, Ist ionization enthalpy of *A* and *B* is greater than group I (Li 520 $kJmol^{-1}$ to Cs374 $kJmol^{-1}$), which means element *A* and *B* belong to group –2 and all three given ionization enthalpy values are less for element *B* means *B* will come below *A*.
20. (b) For dissolution, Hydration energy> Lattice energy.
$BaSO_4$ is sparingly soluble in water because its hydration energy is lesser than the lattice energy and thus ions are not separated from each other.
21. (c) The anomalous behaviour of first member of a group in the *s*- and *p*-block element is due to their small size, large charge/radius ratio and high electronegativity.
22. (c) In $3d^6 4s^2$ the differentiating electron enters d sub shell, Hence it represents transition metal, Fe.
23. (b) In the isoelectronic species, all isoelectronic anions belong to the same period and cations to the next period.
24. (b) On passing from left to right in a period acidic character of the normal oxides of the elements increases with increase in electronegativity.
25. (a) The electronic configuration clearly suggests that it is a d-block element (having configuration $(n-1)\,d^{1-10}\,ns^{0-2}$) which starts from III B and goes till II B. Hence with d^3 configuration it would be classified in the group.
26. (b) Correct order of increasing basic strength is
$NH_3 > PH_3 > AsH_3 > SbH_3 > BiH_3$
27. (c) Electron affinity of ^9F is less than that of ^{17}Cl
28. (c) $ns^2 np^1$ is the electronic configuration of III A period.
Al_2O_3 is amphoteric oxide
29. (d) P^{5+} has more effective nuclear charge and smaller size than P^{3+}.
30. (a) For isoelectronic species, size of anion increases as negative charge increases. Thus the correct order is

$$\underset{(1.71)}{N^{3-}} > \underset{(1.40)}{O^{2-}} > \underset{(1.36)}{F^-}$$

31. (a) Hydrogen bonding increases the boiling point. Hydrogen bonds are formed in compounds having F or O or N with hydrogen. S, Se, Te cannot undergo hydrogen bond formation because of their larger size and lower electronegativity values.

32. (b) A. $Li^+ < Al^{2+} < Mg^{2+} < K^+$

The cation with the greater positive charge will have a smaller radius because of the greater attraction of the electrons to the nucleus. Anion with the greater negative charge will have the larger radius.

$$\text{Positive charge} \propto \frac{1}{\text{ionic radius}}$$

Negative charge $\propto$ ionic radius

B. Greater positive charge, increases effective nuclear charge in case of isoelectronic species. While for same group elements effective nuclear charge decreases down the groups.

C. Cl > F > Br > I

electron affinity of Cl is highest in halogen family.

D. F > Cl > Br > I

electronegativity of fluorine (F) is higher than Cl, Br and I.

33. (a) Because Al is amphoteric in nature so it dissolve in both acid and base.

34. (b) Pb^{2+} ($5d^{10}\ 6s^2$), has the most stable +2 oxidation state because here the *d*-orbital is completely filled and is more stable than Fe^{2+} ($3d^6$). Again Ag^+ ($4d^{10}$) is more stable as here again the *d*-orbital is completely filled and Ag^{2+} is not easily obtained. Pb^{2+} is more stable compared to Sn^{2+} ($4d^{10}\ 5s^2$) because of its large size.

35. (b)

36. (a) Iodine with lower atomic weight than that of tellurium (Group VI) was placed in Group VII along with fluorine, chlorine, bromine because of similarities in properties.

37. (c) Covalent radius is radius of an atom in its bound state i.e., in fluorine it is half of distance between two covalently bonded fluorine atoms; van der Waal radii is one-half of the distance between the nuclei of two identical non-bonded isolated atoms. These atoms are attracted toward each other through weak van der Waal's force hence van der Waal radii are very large.

38. (c) According to Dobereneir's triad the atomic mass of Br will be average of the atomic masses of Cl & I

$$= \frac{35.5+127}{2} = 81.25$$

39. (b) $\because$ For $Na \longrightarrow Na^+ + e^-$ $\quad IE_1 = 5.1$ eV

$\therefore$ For $Na^+ + e^- \longrightarrow Na$ $\quad EF = -5.1$ eV

(because the reaction is reverse)

40. (b) N has half filled atomic orbital, which is more stable.

41. (d) Number of moles $= \frac{1}{35.5}$

Given, 1 eV = 23.06 kcal mol^{-1}

3.7 eV = 3.7 × 23.06 kcal mol^{-1}

i.e. 1 mole realease energy

= 3.7 × 23.06 kcal

$\therefore$ Energy released

$$= \frac{1}{35.5} \times 3.7 \times 23.06 \text{ kcal} = 2.4 \text{ kcal}$$

42. (a)

43. (a) O^- ion exerts a force of repulsion on the incoming electron. The energy is required to overcome it.

44. (d) Oxides of Eka-Aluminium = Ga_2O_3

Oxides of Eka-Silicon = SiO_2

Melting point of Eka-Aluminium = Low (302 K)

Melting point of Eka-Silicon = High (1231 K)

45. (b) In case of halogens covalent radius is considered this bond is formed by overlapping of electron clouds; while noble gases remain monoatomic, in this case only way to obtain radius is through van der Waal radii.