

CLASSIFICATION OF ELEMENTS AND PERIODICITY IN PROPERTIES

ONE MARK QUESTIONS

- 1 Write the symbol and IUPAC name of the element with atomic number 117.
- 2 Arrange the following elements S,P,O,N in the increasing order of non-metallic character.
- 3 What are the various factors due to which the ionization enthalpy of the main group elements tends to increase across a period.
- 4 What do you mean by screening effect.
- 5 To which group and period will the element with atomic number 111 belong?
- 6 What is the oxidation state and covalency of $[\text{Al Br}(\text{NH}_3)_5]^{2+}$
- 7 What are i.) d block elements ii.) f block elements?

TWOMARKS QUESTIONS

- 1 Predict the position in the periodic table
a) $(n-1)d^1 ns^2$ where $n=4$ b) $(n-1)d^2 ns^2$ where $n=5$
- 2 The first & second ionization enthalpies & electron gain enthalpies of elements A,B,C.&D are as follows

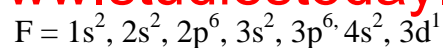
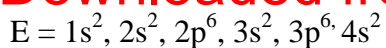
Element	$\Delta_i H_1$	$\Delta_i H_2$	$\Delta_{eg} H$
A	419	3051	-48
B	1681	3374	-328
C	738	1451	-40
D	2372	5251	+49

Identify the element which is likely to be

- i) A most reactive non-metal ii) A most reactive metal
- iii) a noble gas iv) metal forming binary halide (MX_2)
- 3 What are isoelectronic species? Name the species that will be iso electronic with each of the following atoms or ions. (i) F^- (ii) Ar (iii) Mg^{2+} (iv) Rb^+
- 4 What is the difference between electron gain enthalpy and electro negativity?
- 5 Explain why cations are smaller than corresponding anions.
- 6 Write the general outer electronic configuration of
i. s block elements ii. p block elements
iii. d block elements iv. f block elements

THREE MARKS QUESTIONS

1. Arrange the following in increasing order of size by giving reason
a) K, K^+ b) I^+ , I, I^- c) Li^+ , Na^+ d) Mg^{2+} , Na^+
2. If A = $1s^2, 2s^2, 2p^1$ B = $1s^2, 2s^2, 2p^6, 3s^2, 3p^1$
C = $1s^2, 2s^2, 2p^6, 3s^2, 3p^3$ D = $1s^2, 2s^2, 2p^6, 3s^2, 3p^5$



- a) Which is the most metallic?
 - b) Which has the highest negative value for electron gain enthalpy?
 - c) Which one belongs to the d-block?
 - d) Which is a halogen?
 - e) Which two elements are in the same group?
 - f) Which elements belongs to the 13th group?
3. Give reason.
- a) Cl^- is larger than Cl.
 - b) IE_2 of Na is greater than IE_2 of Mg.
 - c) IE_1 of B is 800kJ/mole while IE_1 of Be is 900kJ/mole.
4. Justify the following
- a) Lanthanides and actinides are placed separately in the periodic table
 - b) IE of Na^+ is almost double that of Ne.
 - c) Third period contains only 8 elements
5. Explain why?
- a) $\Delta_{eg}H$ of F is less negative than that of Cl.
 - b) IE_1 of N is 1402kJ while that of O is 1314kJ.
 - c) Li & Mg resemble in many of their properties
 - d)
6. Which atom in each of the following pairs has greater first IE ?
- a) B or C b) N or O c) F or Ne d) Cl or F e) K or Ar f) Kr or Xe
