**AS Group 7 – Test (Ans)**

**1.** (a) Decreases  **(1)**

Atomic radius increases  **(1)**

due to more shells or due to more shielding  **(1)** 3

(b) Increases  **(1)**

Molecular size or surface area increases  **(1)**

Intermolecular van der Waals’ forces increase  **(1)** 3

(c) Br2 in non-polar or atoms have same electronegativity  **(1)**

weak van der Waals’ forces between Br2 molecules  **(1)**

I-C1 is polar or atoms have different electronegativies  **(1)**

Dipole-dipole attractive forces between ICl molecules **(1)** 4

[10]

**2.** (a) Oxidising power decreases, Cl2Br2J2 **(1)** 1

(b) Observation with aqueous KC1 Yellow solution or no reaction **(1)**

Observation with aqueous KI Brown solution or black precipitate **(1)**

Ionic equation 2I– + Br2  2Br– + I2 **(1)** 3

(c) (i) Cl2 **(1)**

(ii) H2O + Cl2  HCl + HClO **(1)**

(iii) Red colour due to presence of acid or H+ ions **(1)**

White due to bleading by HClO **(1)** 4

(d) 2NaOH + Cl2  NaCl + NaClO + H2O **(1)** 1

[9]

**3.** (a) (i) –2 OR 2–

(ii) NaI or NaAt or I– or iodide or At–or Astatide **(1)**

Not atoms or molecules

(iii) Smell of bad eggs **(1)**

Allow PbAc2 goes black and K2Cr2O7/H+ goes cloudy green

(iv) 8 e– + 8 H+ + H2SO4  H2S + 4H2O **(1)**

OR 10 H+ +SO42–

 4

(b) (i) HF or HCl **(1)**

CE = 0 if redox answer given

If wrong halide given allow max one in b(iii)

If NaF or NaCl, or F– or Cl– given lose mark in (i)

Mark on if X is e.g. HF2 or H2F

(ii) NaF or NaCl or F– or Cl– **(1)**

(iii) A proton donor or an acid **(1)**

(iv) H+ +F–  HF

OR H2SO4 + NaF  NaHSO4 + HF

OR H2SO4 + 2 NaF  Na2SO4 + 2 HF

OR for chloride

 4

[8]

**4.** Addition of silver nitrate No precipitate with fluoride ions **(1)**
 White precipitate with chloride ions **(1)**
 Cream precipitate with bromides ions **(1)**
 Yellow precipitate with iodide ions **(1)**

 Addition of ammonia solution AgCl precipitate dissolves in dilute NH3 (aq) **(1)**
 AgBr precipitate sparingly soluble in dilute NH3 (aq)
 OR soluble in concentrated NH3 (aq) **(1)**

AgL precipitate insoluble in concentrated
NH3 (aq) **(1)** 7

Silver astatide AgAt precipitate insoluble in concentrated NH3 (aq) **(1)**

 Solubility of AgX decreases down Group VII
 OR as AGI insoluble predict AgAt insoluble **(1)**

 2

[9]

A = 29

B = 25

C = 21

D = 17

E = 13