Practice Question Set For A-Level
Subject : Chemistry
Paper-2 Topic: Physical

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Name of the Student:_____
Max. Marks : 15 Marks **Time : 15 Minutes**

Mark Schemes

Q1.

(a) Electronegativity increases

1

Proton number increases (increase in nuclear charge)

1

Same number of electron shells/levels
Or same radius or Shielding of outer electrons remains the same

1

Attraction of bond pair to nucleus increases
Allow 'electrons in bond' instead of 'bond pair'

1

(b) Big difference in electronegativity leads to ionic bonding, smaller covalent
Lose a mark if formula incorrect

1

Sodium oxide ionic lattice

1

Strong forces of attraction between ions

1

P_4O_{10} covalent molecular
Must have covalent and molecular (or molecules)

1

Weak (intermolecular) forces between molecules
Or weak vdW, or weak dipole–dipole between molecules

1

melting point Na_2O greater than for P_4O_{10}
Or argument relating mpt to strength of forces

1

(c) Moles NaOH = 0.0212 × 0.5 = 0.0106
M1 moles of NaOH correct

1

Moles of H_3PO_4 = 1/3 moles of NaOH (= 0.00353)
M2 is for 1/3

1

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Moles of P in 25000 l = $0.00353 \times 10^6 = 3.53 \times 10^3$

M3 is for factor of 1,000,000

1

Moles of $P_4O_{10} = 3.53 \times 10^3/4$

M4 is for factor of 1/4 (or 1/2 if P_2O_5)

1

Mass of $P_4O_{10} = 3.53 \times 10^3/4 \times 284 = 0.251 \times 10^6$ g

= 251 kg

(Or if P_2O_5 $3.53 \times 10^3/2 \times 142$)

M5 is for multiplying moles by M_r with correct units

allow conseq on incorrect M4

(allow 250-252)

1

[15]

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