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CHEMISTRY
Unit 1 Trial Examination
SOLUTIONS BOOK

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Use this page as an overlay for marking the multiple choice answer sheets. Simply photocopy the page onto an overhead projector sheet. The correct answers are open boxes below. Students should have marked their answers with a cross. Therefore, any open box with a cross inside it is correct and scores 1 mark.

1.		B	C	D
2.	A	B		D
3.	A	B	C	
4.		B	C	D
5.	A		C	D
6.	A		C	D
7.	A	B		D
8.	A		C	D
9.	A	B	C	
10.	A	B		D

11.	A	B		D
12.	A	B	C	
13.	A		C	D
14.	A		C	D
15.		B	C	D
16.	A	B		D
17.	A	B		D
18.	A	B		D
19.	A	B		D
20.		B	C	D

SECTION A

1.	A	2.	C	3.	D	4.	A	5.	B
6.	B	7.	C	8.	B	9.	D	10.	C
11.	C	12.	D	13.	B	14.	B	15.	A
16.	C	17.	C	18.	C	19.	C	20.	A

SECTION B

Question 1

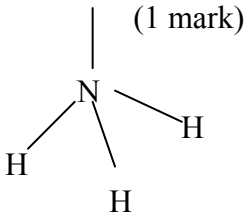
(a) C & D (1 mark each)

(b) B & E (1 mark each)

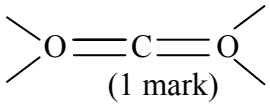
(c) C & F (1 mark each)

Question 2a

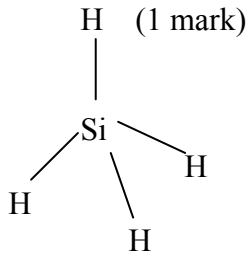
NH_3 triangular pyramid (1 mark)
or trigonal pyramid



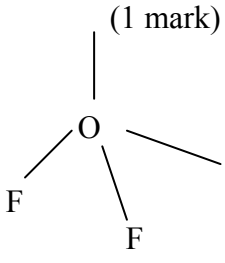
CO_2 linear (1 mark)



SiH_4 tetrahedral (1 mark)



OF_2 angular or v-shaped (1 mark)



(b)

NH_3	polar	polar bonds, lack of symmetry (1 mark)
CO_2	non-polar	polar bonds but symmetrical (1 mark)
SiH_4	non-polar	weak polar bonds but the molecule is symmetrical (1 mark)
OF_2	polar	polar bonds, lack of symmetry (1 mark)

Question 3

(a) $2C_8H_{18}(l) + 25O_2(g) \rightarrow 16CO_2(g) + 18H_2O(g)$ (1 mark) correct formulae
(1 mark) balanced

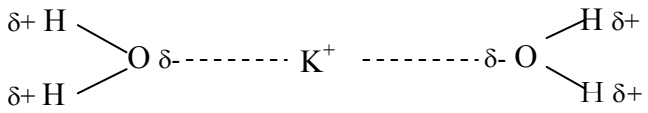
(b) $2Mg(s) + O_2(g) \rightarrow 2MgO(s)$ (1 mark) correct formulae
(1 mark) balanced

(c) $Ba(NO_3)_2(aq) + Na_2SO_4(aq) \rightarrow BaSO_4(s) + 2NaNO_3(aq)$
or accept the ionic version (1 mark) correct formulae
$Ba^{2+}(aq) + SO_4^{2-}(aq) \rightarrow BaSO_4(s)$ (1 mark) balanced

Question 4

(a) $KCl(s) \xrightarrow{H_2O} K^+(aq) + Cl^-(aq)$ (1 mark)

(b)



(Note only two of a number of nearest neighbour water molecules are shown)
(1 mark) correct diagram & (1 mark) correct orientation of dipoles

(c) ion-dipole bonds (1 mark)

Question 5

(a) (i) 1.85 g (1 mark) (ii) 1.25 g (1 mark)

(b) The teenager should have purchased pHexzone. (1 mark)

pHexzone 2.59 mg per cent, Removderm 1.98 mg per cent by calculation (1 mark)

or alternatively pHexzone $3.85 per gram and Removderm $5.06 per gram

Question 6

(a) Isomers have the same molecular formula but a different structure (1 mark)

(b) $CH_3CH_2CH_2CH_2OH$ (1 mark) 1-butanol or butan-1-ol or 1-hydroxy butane (1 mark)

$CH_3CH_2CH(OH)CH_3$ (1 mark) 2-butanol or butan-2-ol or 2-hydroxy butane (1 mark)

(c) alcohol homologous series (1 mark)

Question 7

(a) pentane (1 mark)

(b) propanoic acid (1 mark)

(c) propene (1 mark)

(d) 2-chloropentane (1 mark)

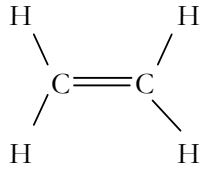
Question 8

(a) C_2H_4 (1 mark)

(b) Gas at room temp, colourless, insoluble in water (any two for 1 mark)

(c) An unsaturated compound contains at least one C to C multiple bond. (1 mark)

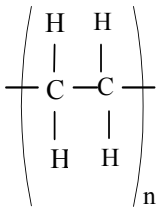
(d)



(1 mark)

(e) (i) Addition polymerization (1 mark)

(ii)



(1 mark)

(f) HDPE (high density polyethene) has a higher melting point than LDPE (low density polyethene) as the polymer chains have much less branching (1 mark) and therefore can approach each other more easily and maximise dispersion forces (1 mark) within a given volume.

Question 9

(a) An emulsion consists of one liquid suspended in droplet form in another liquid. (1 mark)

(b) Ice cream is an oil in water (O/W) emulsion (1 mark) ie. oil droplets suspended in a water medium.

Margarine is a water in oil (W/O) emulsion (1 mark) ie. water droplets suspended in an oil medium.

c) Emulsifiers contain both a hydrophilic or water-attracting head (polar or ionic) (1 mark) and a hydrophobic tail (non-polar) (1 mark) which is attracted to other non-polar molecules.

END OF SUGGESTED SOLUTIONS