

01. 0620_s17_ms_41 Q: 2

(a)(i)	SO ₂	1
(a)(ii)	Na ₂ O	1
(a)(iii)	Cr ₂ O ₃	1
(a)(iv)	SiO ₂	1
(a)(v)	Al ₂ O ₃ /Cr ₂ O ₃	1
(a)(vi)	CO	1
(b)(i)	an amphoteric oxide will react with acids AND with bases	1
(b)(ii)	a neutral oxide will not react with acids or with bases	1

02. 0620_w13_ms_33 Q: 1

- (a) same number of protons [1]
 same number of electrons [1]
 different number of neutrons [1]

- (b) (i) ²³⁵U / ²³⁹Pu [1]
NOTE: need symbol or name and nucleon number

- (ii) treating cancer / chemotherapy / radiographs / tracer studies / x-ray (scans) /
 sterilise surgical instruments / diagnose or treat thyroid disorders / radiotherapy [1]

paper thickness / steel thickness / radiographs / welds / tracing / fill levels in
 packages / food irradiation / smoke detectors [1]
ACCEPT: any other uses

- (iii) $Zr + 2H_2O \rightarrow ZrO_2 + 2H_2$ [2]
 not balanced = (1) only

- (iv) hydrogen explodes / fire (risk) [1]

(c)

if the oxide is	predicted result with hydrochloric acid	predicted result with aqueous sodium hydroxide
acidic	NR	R
neutral	NR	NR
basic	R	NR
amphoteric	R	R

(1) per line [4]

[Total: 13]

03. 0620_w12_ms_31 Q: 4

- (a) giant covalent; [1]
or: polymer made from monomers;
- (b) (i) any three from: [3]
high mp / bp;
hard;
brittle;
insoluble (in water);
poor conductor of electricity / heat;
- (ii) carbon / diamond / silicon / boron; [1]
not: graphite
- (c) (i) sodium hydroxide / any named alkali / reactive metal; [1]
(ii) named acid; [1]
zirconium oxide; [1]

[Total: 8]

Ace | GCSE
Paper Perfection, Crafted With Passion