

Cambridge Chemistry Challenge Lower 6th

June 2015

Student Answer Booklet

Student name _____

male female

Email _____

School _____

School year (eg year 12) _____

Subjects taken for AS _____

	p2	p3	p4	p5	p6	p7	Total
mark	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

1(a) equations (underline reduced element):

(i) from mercury(II) oxide:

(ii) from silver(I) carbonate:

(iii) from potassium nitrate(V):

(iv) from sulfuric acid and manganese(IV) oxide:

1(b) dot & cross diagrams

(i) formula =

(ii) formula =

(iii) formula =

1(c) neutral species isoelectronic with nitrate(III) ion:

formula:

name:

1(d) activation energy for puckered-ring O_4 from O_2 :

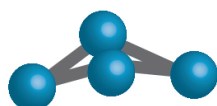
leave
blank

1(e) A =

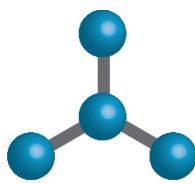
B =

C =

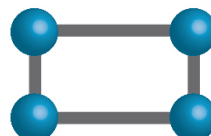
1(f) tick the shape(s) most consistent with the data:



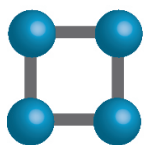
puckered ring



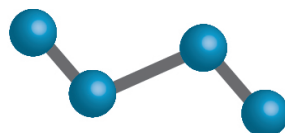
pinwheel



rectangular



square



cis-chain



trans-chain

1(g) time taken:

2(a)

i)

ii)

iii)

iv)

leave
blank

2(b) circle one or more:

Free radical

Nucleophilic

Substitution

Electrophilic

Addition

2(c) three alkenes:

2(d)

i)

ii)

iii)

iv)

2(e) for α -terpineol

i) connect: ___ & ___

ii) Carbocation B⁺:

leave
blank

2(f) for borneol

i) connect: ___ & ___

ii) Carbocation C⁺:

2(g) for β -pinene

i) connect: ___ & ___

ii) Carbocation D⁺:

2(h)

Cation U⁺:

leave
blank

2(i)

connections:

2(j)

Compound X

Compound Y

2(j)

Anion Z⁻

leave
blank