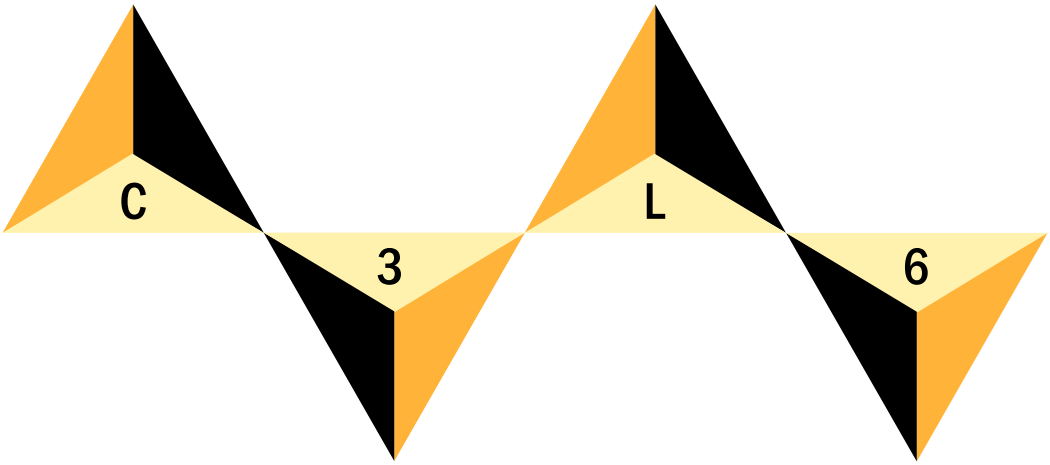


Cambridge Chemistry Challenge Lower 6th

June 2012

Student Answer Booklet

Student name _____

male ☐ female ☐

Email _____

School _____

School year (eg year 12) _____

Subjects taken for AS _____

_____

_____

	p2	p3	p4	p5	p6	p7	p8	Total
mark								

leave blank

1(a) **(i) oxidation state of As**

(ii) equation for production of As_2O_3

(b) (i) Structure of H_3AsO_3 **geometry around As:**

(ii) Equation for formation of H_3AsO_3:

(iii) Concentration of H_3AsO_3:

(c) (i) Mass of As_2O_3 in 100 cm^3:

leave blank

1(c) **(ii) volume needed for a fatal arsenic dose:**

answer expressed as a fraction of the Earth's volume:

(iii) number of bottles to contain one atom:

1(d) **concentrations of HCl in mol dm^{-3}**

(i) D2 **(ii) D4** **(iii) D6**

(iv) D8 **(v) D10**

leave blank

1(e) **(i) pH of pure water:**

$[H^+]$ for pure water:

(ii) pH of solutions:

stock solution: pH = **D2 pH =**

D4 pH = **D6 pH =**

D8 pH = **D10 pH =**

(f) **concentration of conc. HCl**

pH of conc. HCl

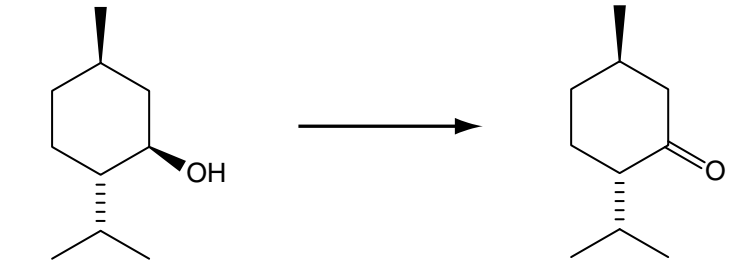
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1(g) **concentration of pure water:**

(h) **mass of acid:**

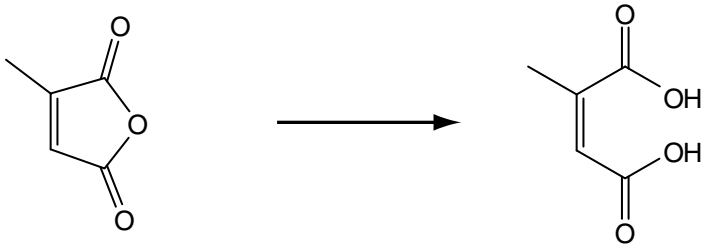
2 (a)

(i)



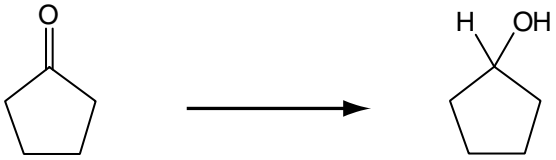
ox. ☐ **red.** ☐ **hyd.** ☐

(ii)



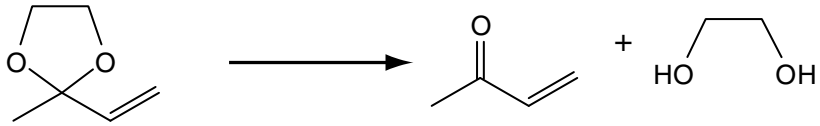
ox. ☐ **red.** ☐ **hyd.** ☐

(iii)



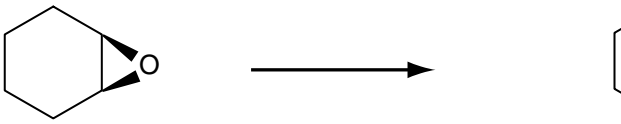
ox. ☐ **red.** ☐ **hyd.** ☐

(iv)



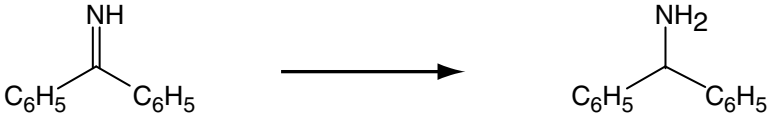
ox. ☐ **red.** ☐ **hyd.** ☐

(v)



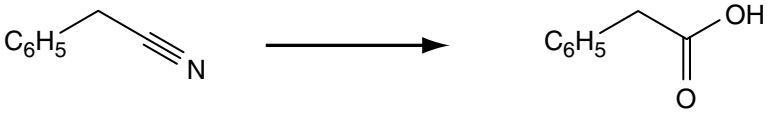
ox. ☐ **red.** ☐ **hyd.** ☐

(vi)



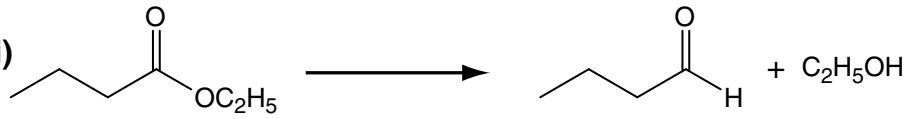
ox. ☐ **red.** ☐ **hyd.** ☐

(vii)



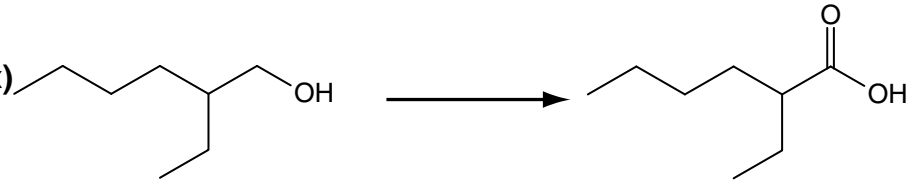
ox. ☐ **red.** ☐ **hyd.** ☐

(viii)



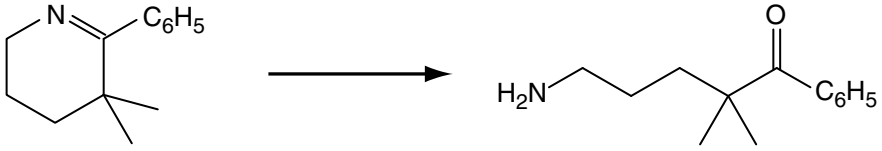
ox. ☐ **red.** ☐ **hyd.** ☐

(ix)



ox. ☐ **red.** ☐ **hyd.** ☐

(x)



ox. ☐ **red.** ☐ **hyd.** ☐

leave blank

2(b)

(i)

A (46)

B (74)

(ii)

C (174)

(iii)

D (58)

E (46)

F (46)

(iv)

G (176)

H (74)

J (60)

K (92)

L (44)

M (17)

2(c)

leave blank

R

S

T

U

V

W

X

Y

Z