ANDERSON SERANGOON JUNIOR COLLEGE

2025 JC 2 PRELIMINARY EXAMINATION

NAME:_____ ( ) **CLASS:** 25 / ___

CHEMISTRY **8873/01**

Paper 1 Multiple Choice **2 September 2025**

1 hour

Additional Materials: Multiple choice Answer Sheet
Data Booklet

READ THESE INSTRUCTIONS FIRST

Write in soft pencil.
Do not use staples, paper clips, glue or correction fluid.
Write your name and class on the Answer Sheet in the spaces provided.

There are **thirty** questions on this paper. Answer **all** questions. For each question there are four possible answers **A**, **B**, **C** and **D**.
Choose the **one** you consider correct and record your choice in **soft pencil** on the separate Answer Sheet.

Read the instructions on the Answer Sheet very carefully.

Each correct answer will score one mark. A mark will not be deducted for a wrong answer.
Any rough working should be done in this booklet.
The use of an approved scientific calculator is expected, where appropriate.

Multiple Choice Answer Sheet

Write your name, class and NRIC / FIN number, **including** the reference letter.

Shade the NRIC / FIN number.

Exam Title: JC2 Preliminary Exam

Exam Details: H1 Chemistry / Paper 1

Date: 02/09/2025

This document consists of __ printed pages.

1 *Use of the Data Booklet is relevant to this question.*

L is the Avogadro constant. Which statement is correct?

A 71.0 g of chlorine gas contains 2 *L* molecules.

B 1.00 mol of sodium sulfate contains 3 *L* ions.

C 6.9 g of lithium ion, Li^+, contains 3 *L* electrons.

D 48 dm^3 of hydrogen gas, measured at r.t.p, contains 2 *L* atoms.

Answer: B

A	$n(Cl_2)$ = 71.0/71.0 = 1 mol No. of molecules = 1 x *L*
B	1 mol of Na_2SO_4 contains 2 mol of Na^+ and 1 mol of SO_4^{2-}. No. of ions = 3 x *L*
C	$n(Li^+)$ = 6.9/6.9 = 1 mol 1 Li^+ contains 3 − 1 = 2 e. No. of electrons = 2 x L
D	Molar volume of a gas at r.t.p is 24 dm^3. $n(H_2)$ = 48/24 = 2.0 mol No. of H atoms = 2 x 2 x L = 4 L

2 *Use of the Data Booklet is relevant to this question.*

Iodine-131 is radioactive and is used in thyroid cancer treatment. Which statements about this element are correct?

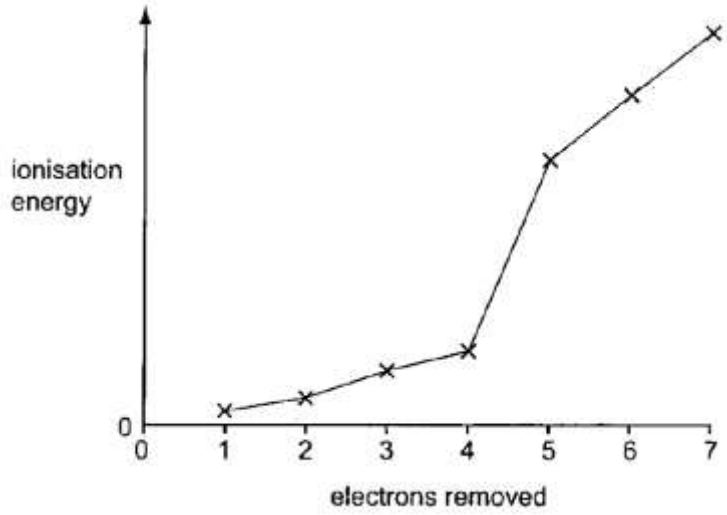
1	There are p electrons present in 5 quantum shells.
2	There are 78 neutrons, 53 protons and 54 electrons in the negative ion of $^{131}_{53}\mathrm{I}$.
3	All electrons in the negative ion of $^{131}_{53}\mathrm{I}$ are paired.

A 1, 2 and 3 **B** 2 and 3 only **C** 1 and 3 only **D** 2 only

Answer: B

	reason
Statement 1 is incorrect	There are p electrons present in **4** quantum shells (2p, 3p, 4p, 5p).
Statement 2 is correct	For a singly negatively charged ion, number of electrons is = 53 + 1 = 54 No. of neutrons = 131 – 53 = 78
Statement 3 is correct	All electrons in negative ion of $^{131}_{53}\mathrm{I}$ are paired.

3 The first seven ionisation energies of an element **Y** are shown in the sketch graph.



What could be the identity of element **Y**?

A Bromine

B Carbon

C Phosphorus

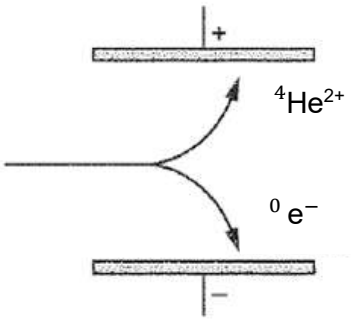
D Silicon

Answer: D

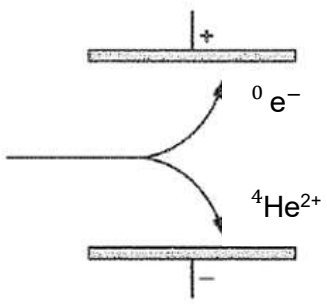
Option D is correct.
The biggest energy gap is between the fourth and fifth electron. This suggested there are 4 valence electrons in the outermost shell.
Although both carbon and silicon has 4 valence electrons, carbon which has only two 1s inner electrons cannot be **Y**. This is observed from the data that Y has three electrons from next inner quantum shell.
Hence, D is silicon.

4 A beam of particles contains $^{4}He^{2+}$ and $^{0}e^{-}$ ions. All particles approach an electric field at the same speed.
Which diagram indicates the deflection of these particles as they pass through the electric field?

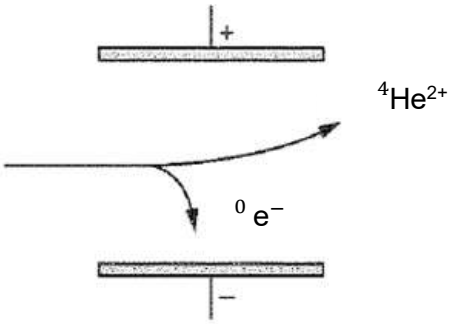
A



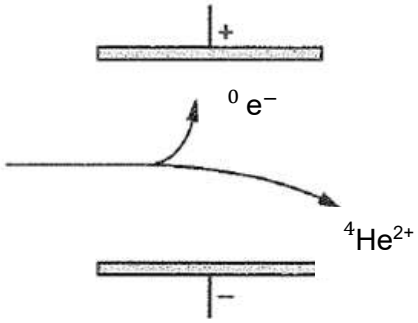
B



C



D



Answer: D

Negatively charged electrons deflect towards positively charged plate while positively charged protons deflect towards negatively charged plate.

Angle of deflection, θ, is proportional to the charge of the particle, but inversely proportional to its mass.

$$\theta \propto \frac{\text{charge}}{\text{mass}}$$

$\frac{q}{m}$ for $^{0}e^{-} = \infty$ $\frac{q}{m}$ for $^{4}He^{2+} = \frac{2}{4} = 0.5$

Thus, the angle of deflection for $^{0}e^{-} > {}^{4}He^{2+}$.

5 *Use of the Data Booklet is relevant to this question.*

Under acidic conditions, potassium manganate(VII) reacts with potassium iodide. The iodine that was liberated can be determined by titrating with sodium thiosulfate solution. The relevant equations are shown but not balanced.

Reaction I: 2 MnO_4^-(aq) +16 H^+(aq) + **a** I^-(aq) ⟶ … Mn^{2+}(aq) + … H_2O(l) + … I_2(aq)

Reaction II: **b** I_2(aq) + 2 $S_2O_3^{2-}$(aq) ⟶ … I^-(aq) + …$S_4O_6^{2-}$(aq)

What are the values of **a** and **b** in the correctly balanced equations?

	a	**b**
A	10	1
B	10	2
C	5	1
D	5	2

Answer: A

There are various ways to solved a and b.

The easiest is to use Data Booklet to identify the number of electrons involved in half-equation. Since no. of electron gain = no. of electron lose, one can determine the mole ratio between the reactants.

In reaction I:

Mn in MnO_4^- is reduced from +7 to +2 (ie takes in 5 e).

I^- lose 1 e to oxidise to element I_2 from -1 to 0. (ie lose 1 mol e).

Hence, reducing 2 moles of MnO_4^- require 10 moles of iodide. **a** = 10.

In reaction II:

Observing 2 mol of $S_2O_3^{2-}$(aq) form 1 mol of $S_4O_6^{2-}$(aq), one can use Data Booklet to know 2 mol of e are lost and taken by 1 mole of iodine.

Hence, **b** = 1.

6 *Use of the Data Booklet is relevant to this question.*

The complete combustion of 0.0050 mol of hydrocarbon **W** requires 0.540 dm^3 of oxygen measured at r.t.p.

0.27 g of water is produced.

What is the molecular formula of **W**?

A C_2H_6 **B** C_3H_6 **C** C_3H_8 **D** C_4H_8

Answer: B
$n(O_2)=0.540/24 = 0.0225$ mol
$n(H_2O)= 0.27/18 = 0.015$ mol

$C_xH_y + (x+y/4)O_2 \rightarrow xCO_2 + y/2\ H_2O$
Mole ratio 1 4.5 x 3

No. of mole of O_2 reacting to one mole of C_xH_y, y= 0.0225/0.005 = 4.5

No. of mole of H in one mole of C_xH_y, y/2 = 0.015/0.005 => y = 6

x + y/4 = 4.5
=> x + 6/4 = 4.5
=> x = 3

Hence, C_xH_y is C_3H_6.

7 Which equation shows a reaction in which co-ordinate (dative covalent) bonds are formed?

A $NO_2 + NO_2 \longrightarrow N_2O_4$

B $2NO + 2H_2 \longrightarrow N_2 + 2H_2O$

C $H_2O + H^+ \longrightarrow H_3O^+$

D $Cl_2 + CH_4 \longrightarrow CH_3Cl + HCl$

Answer: C

A	Each N in NO2 molecule has an unpaired electron. They come together to form N–N covalent bond. $O_2N\bullet + \bullet NO_2 \longrightarrow O_2N{-}NO_2$
B	This is a redox reaction which involved bonds breaking and bonds forming.
C	Lone pair on O in water donated to empty orbital in H+, resulting in dative formation.

	$H_2O: + H^+ \longrightarrow [H_2O \rightarrow H]^+$
D	This is a substitution reaction of alkane involving bonds breaking and bonds forming.

8 Sulfur dioxide is a very important compound in winemaking.

Sulfur dioxide can be represented as $O{=}\ddot{S}{=}O$.

Which statements about sulfur dioxide is true about its polarity and its bond angle.

A Sulfur dioxide is polar and has a bond angle of 90° exactly.

B Sulfur dioxide is non-polar and has a bond angle of 104° approximately.

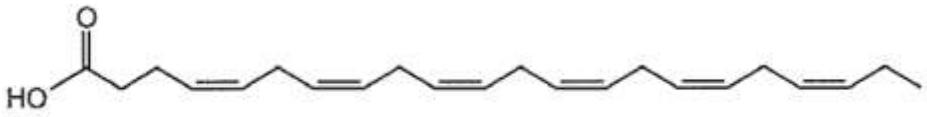
C Sulfur dioxide is polar and has a bond angle of 118° approximately.

D Sulfur dioxide is non-polar and has a bond angle of 180° exactly

Answer: C

SO_2 molecule contains 2 bond pairs (bp) and 1 lone pair (lp) around the S atom. Hence the 3 electron pairs are arranged in a trigonal planar shape at 120° apart.
Since lp–bp repulsion is greater than bp–bp repulsion, the bond angle is **slightly** reduced from 120°.
As it is bent, the molecule has an overall dipole moment and is polar.

9 Cervonic acid is an omega-3 fatty acid.



cervonic acid

Which type of intermolecular force will operate between the hydrocarbon chains of cervonic acid?

A covalent bonding

B hydrogen bonding

C instantaneous dipole-induced dipole

D permanent dipole-permanent dipole

Answer: C
The hydrocarbon chains of cervonic acid contain non–polar bonds and hence are likely to have **instantaneous dipole–induced dipole** interaction between them.

10 Which compound has the most negative lattice energy?

A Rubidium fluoride

B Rubidium oxide

C Potassium fluoride

D Potassium oxide

Answer: D

$$\left|\text{Lattice Energy}\right| \quad \alpha \quad \left|\frac{q_+ \times q_-}{r_+ + r_-}\right|$$

Between RbF and Rb_2O, O^{2-} has a bigger charge and hence, Rb_2O will have a more negative lattice energy.
Between KF and K_2O, O^{2-} has a bigger charge and hence, K_2O will have a more negative lattice energy.
Between Rb_2O and K_2O, K^+ has a smaller ionic radius and hence, K_2O will have a more negative lattice energy.

11 Which equation describes the reaction whose ΔH is the standard enthalpy of formation of water at 298 K?

A $H_2(g) + ½\ O_2(g) \longrightarrow H_2O(l)$

B $H_2(g) + ½\ O_2(g) \longrightarrow H_2O(g)$

C $2H(g) + O_2(g) \longrightarrow H_2O(l)$

D $H^+(aq) + OH^-(g) \longrightarrow H_2O(l)$

Answer: A
Definition of standard enthalpy of formation:
The amount of heat absorbed or evolved when one mole of a substance is formed from its constituent elements, all in their standard states at 298 K and 1 bar.

Hence, 1 mole of $H_2O(l)$ requires 1 mole of $H_2(g)$ and 0.5 mole of $O_2(g)$, all in their standard states, at 298K and 1 atm.

12 Which pairs of enthalpy changes will always have the same sign, both negative or both positive?

1 Enthalpy change of combustion and enthalpy change of neutralisation

2 Enthalpy change of formation and lattice energy

3 Bond energy and enthalpy change of combustion

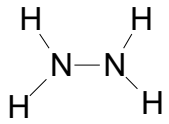
A 1, 2 and 3 **B** 1 and 3

C 2 and 3 **D** 1 only

Answer: D

1	Both enthalpy change of combustion and enthalpy change of neutralisation always result to heat release and hence always negative.
2	Lattice energy is always negative as ionic bonds are formed during formation of ionic substances from its gaseous ions. However, enthalpy change of formation can be positive or negative as the process involved bond breaking process for the elements (reactants) and bond forming when products are formed.
3	Bond energy involved energy used to break covalent bondings and will always be positive. Combustion always involved heat released and is always negative.

13 Using bond energy values from the *Data Booklet*, what is the standard enthalpy change of formation of hydrazine, $N_2H_4(g)$?



hydrazine

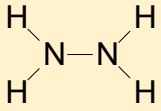
A +96 kJ mol^{-1} **B** –96 kJ mol^{-1}

C +250 kJ mol^{-1} **D** –250 kJ mol^{-1}

Ans: **A**

$N_2 + 2H_2 \longrightarrow N_2H_4$ (g)

Enthalpy change of formation: forming 1 mol of N_2H_4 from element in its natural state.

Structure of N_2H_4: 

Bonds broken (+):
2H−H : 2 × 436 = 872
N≡N : 944
Total energy absorbed: 1816 kJ mol^{-1}

Bonds Formed (-):
N−N: −160
4 N−H: 4 × 390 = −1560
Total energy released: −1720 kJ mol^{-1}

Total energy change: 1816 – 1720 = **+96 kJ mol^{-1}**

14 Compound **K** decomposes by a first order kinetics.

At the start of the reaction, the concentration of **K** was 0.960 mol dm^{-3}. This concentration decreased to 0.240 mol dm^{-3} after 100 minutes.

How many minutes will it take for the concentration of **K** to decrease from 0.80 mol dm^{-3} to 0.10 mol dm^{-3}?

A 48 min

B 50 min

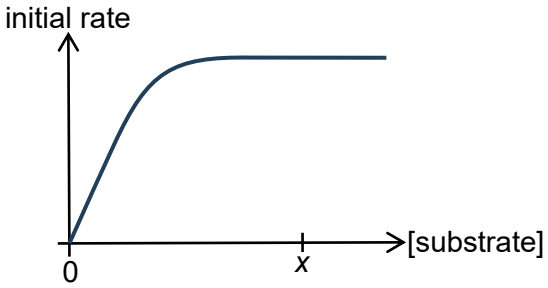
C 100 min

D 150 min

Answer: D
0.960 → 0.480 → 0.240
⇒ four half-lives lasting a total of 100 min
⇒ each half-life is 100 ÷ 2 = 50 min.

0.80 → 0.40 → 0.20 → 0.10
⇒ three half-lives have passed.
⇒ time taken will be 50 × 3 = 150 min.

15 The graph shows how the initial rate of reaction varies for an enzyme catalysed reaction as the substrate concentration changes.



Which statement correctly describe the situation when [substrate] = *x*?

A The initial rate is dependent on [substrate].

B There are no more enzyme active sites available.

C The enzyme lost its catalytic function.

D The order of reaction with respect to substrate is 1.

Answer: B
When [substrate] = x (high concentration), all the active sites on the enzymes are fully occupied, i.e. the enzyme is saturated. Thus, rate of reaction will be independent of [substrate] i.e. order of reaction with respect to substrate is zero. The rate remains constant even though [substrate] increases. The enzyme is still carrying out its catalytic properties, however, the rate is no longer dependent on [substrate].

16 Four successive elements, **W**, **X**, **Y** and **Z**, from the third period of the Periodic Table, were separately heated in dry oxygen.

The table shows the observations made during these reactions.

element	observation
W	Very vigorous reaction forming oxide
X	Vigorous reaction first forming oxide, oxide layer prevents further reaction
Y	Slow reaction forming oxide
Z	Vigorous reaction forming mixture of oxides

Which elements are respectively **W**, **X**, **Y** and **Z?**

A A*l*, Si, P, S

B Na, Mg, A*l*, Si

C Mg, A*l*, Si, P

D Si, P, S, C*l*

Answer: C

X is a giveaway clue that it is A*l* as it forms impermeable aluminium oxides which prevents further reaction by O_2. Only option **B** has A*l* for X, therefore the order of W, X, Y and Z follows: Mg, Al, Si, P.

Mg is W burns very vigourously with a bright white flame with O_2, producing large amount of heat and light.
Si is Y, and has almost no reaction with O_2 at room temperature thus slow reaction to form oxide.
P is Z , which burns vigorously on heating, to give mixture of P_4O_6 and P_4O_{10}.

17 Molecule **G** contains two elements, one from the second period and one from the third period of the Periodic Table.

One of the elements has the smallest atomic radius in both periods (excluding Group 18, the noble gases), while the other element has three electrons only in its p sub-shell in its outermost quantum shell.

What is the formula of molecule **G**?

A AlF_3 **B** BCl_3 **C** PF_3 **D** $LiCl$

Answer: C

Fluorine atom has the smallest atomic radius in both periods.
Across Period 2, F has the highest nuclear charge and negligible increase in shielding effect among the other elements **in the same period** resulting to its smallest atomic radius.
As F has one less quantum shell compared to Cl, it is smallest in Group 17.

The other element must be in Period 3 and has 3 electrons in the p subshell.
Hence ns^2np^3 → Group 15.

The only compound that has group 15 and 17 elements in the formula is PF_3.

18 Which statements about elements in Group 1 of the Periodic Table are correct?

1 Oxidising power increases down the group.

2 Sodium is more electronegative than caesium.

3 They only form stable compounds with +1 oxidation state.

A 3 only

B 1 and 3 only

C 2 and 3 only

D All of the above.

Answer: C

1	Incorrect. Reactivity of Group 1 metals increases down the group. That is, they get oxidized more readily down the group. **Reducing power** of group 1 metal increases down the group.
2	Correct. Electronegativity of elements decreases down the group. So, Na is more electronegative than Cs.
3	Correct. Group 1 metals forms stable compounds with +1 oxidation state. They even form hydride with the formula, MH like NaH.

19 A mixture of 2 mol of chlorine and 1 mol of nitrogen monoxide is allowed to come to equilibrium at a given temperature. The equilibrium mixture contains x mol of NOC*l*.

$$Cl_2(g) + 2NO(g) \rightleftharpoons 2NOCl(g)$$

What are the amounts of the other constituents of the equilibrium mixture?

	Cl_2 / mol	NO / mol
A	2 – x	1 – 2x
B	2 – 0.5x	1 – x
C	1 – 0.5x	2 – x
D	1 — x	2 – 2x

Answer: B

	$Cl_2(g)$ +	2NO(g) ⇌		$2NOCl(g)$
Initial / mol	2	1		0
Change / mol	-0.5x	-x		+x
Equilibrium / mol	2-0.5x	1-x		x

20 Which changes in conditions would result in no change in the value of the equilibrium constant, K_c, for the following reaction?

$$N_2(g) + 3H_2(g) \rightleftharpoons 2\,NH_3(g) \qquad \Delta H = -92\ kJmol^{-1}$$

1 Increasing the concentration of N_2

2 Increasing the total pressure

3 Adding a catalyst

A 1, 2 and 3

B 1 and 2 only

C 2 and 3 only

D 3 only

Answer: A
Equilibrium constant, K_c is only temperature dependent!
Hence, all the changes in conditions given for options 1, 2 and 3 would result in no change in the value of K_c.

21 Values for the ionic product of water, K_w, at two different temperatures are given below.

Temperature/ °C	K_w / mol^2 dm^{-6}
25	1.00×10^{-14}
30	1.44×10^{-14}

What is correct for pure water at 30 °C?

A $[H^+] > [OH^-]$

B $[H^+] = 1.44 \times 10^{-7}$

C pH < 7

D pH = 7

Answer: C
Auto-ionisation of water: $H_2O \Leftrightarrow H^+ + OH^-$
Ionic product of water is written: $K_w = [H^+]\,[OH^-]$

Option A: Since one mole of water ionized to give 1 mol of H^+ and 1 mol of OH^-, $[H^+] = [OH^-]$.
Option B: $[H^+] = \sqrt{(1.44 \times 10^{-14})} = 1.2 \times 10^{-7}$
Option C and D: pH = -log $[H^+]$ = - 1.2×10^{-7} = 6.92 < 7

22 Which of the following solutions, when mixed in equal volumes, will produce a buffer solution?

A 0.04 mol dm^{-3} NaOH(aq) and 0.02 mol dm^{-3} HCl(aq)

B 0.01 mol dm^{-3} NH_3(aq) and 0.02 mol dm^{-3} HNO_3(aq)

C 0.02 mol dm^{-3} NaOH(aq) and 0.01 mol dm^{-3} CH_3COOH(aq)

D 0.01 mol dm^{-3} NaOH(aq) and 0.02 mol dm^{-3} CH_3COOH(aq)

Answer: D
An acidic buffer is made up of a weak acid and its conjugate base. An alkaline buffer is made up of a weak base and its conjugate acid.

A	Strong acid and bases cannot form a buffer solution.

B	$NH_3(aq)$ is the limiting reagent. Neutralisation of the two solutions results to a solution of NH_4^+ and excess HNO_3. The conjugate acid-base pair of NH_4^+ and NH_3 is not formed. Hence, this is not a buffer.
C	$CH_3COOH(aq)$ is the limiting reagent. Neutralisation of the two solutions results to a solution of CH_3COO^- and excess NaOH. The conjugate acid-base pair of $CH_3COO^-$and $CH_3COOH(aq)$ is not formed. Hence, this is not a buffer.
D	NaOH(aq) is the limiting reagent. Neutralisation of the two solutions results to a solution of CH_3COO^- and excess $CH_3COOH(aq)$. The conjugate acid-base pair of $CH_3COO^-$and $CH_3COOH(aq)$ is formed. Hence, this is a buffer.

23 The table shows some data on two acid-base indicators.

Indicator	Approximate pH range of colour change	Colour change	
		acid	alkali
Bromocresol-green	3.8 – 5.5	yellow	blue
Phenol-red	6.8 – 8.5	yellow	red

Which conclusion can be drawn about a solution in which bromocresol-green is blue and phenol-red is yellow?

A It is weakly acidic.

B It is neutral.

C It is weakly alkaline.

D It is strongly alkaline.

Answer: A

Blue in bromocresol green suggested pH of the solution > 5.5
Yellow in phenol red suggested pH of the solution < 6.8.
Hence, pH of this solution is between 5.5 to 6.8. Therefore, the solution is weakly acidic

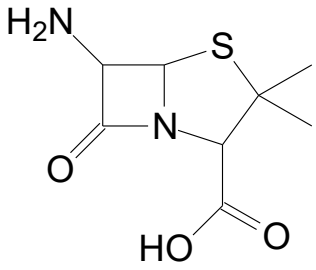
24 Which of the following is not a product of the chlorination of methane in the presence of ultraviolet light?

A CH_3Cl **B** H_2

C CCl_4 **D** HCl

Answer: B
All the four H atoms in methane can be substituted.
$CH_4 + Cl_2 \rightarrow CH_3Cl + HCl$
$CH_3Cl + Cl_2 \rightarrow CH_2Cl_2 + HCl$
$CH_2Cl_2 + Cl_2 \rightarrow CHCl_3 + HCl$
$CHCl_3 + Cl_2 \rightarrow CCl_4 + HCl$
Only H_2 is not the product of this reaction.

25 Penicillins are important anti-bacterial agents. The active penicillins are derivatives of the compound shown.



What is the molecular formula of the above molecule?

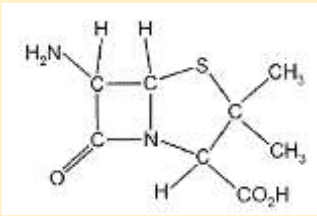
A $C_8H_{12}N_2O_3S$

B $C_8H_9N_2O_3S$

C $C_7H_{12}N_2O_3S$

D $C_7H_9N_2O_3S$

Answer: A



26 Which pairs of molecules are constitutional (structural) isomers?

1 Propanoic acid and methyl ethanoate

2 Butanone and 2-methylpropanal

3 

A 1 and 2 only

B 2 and 3 only

C 1 and 3 only

D All of the above

Answer: D

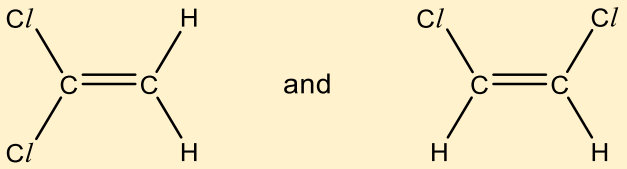
Constitutional isomers have the **same molecular formula but different arrangement of atoms**, meaning that their atoms are connected in a different order.

1 CH_3CH_2COOH and CH_3COOCH_3

Both molecules have the same molecular formula of $C_3H_6O_2$ but different arrangement of atoms.

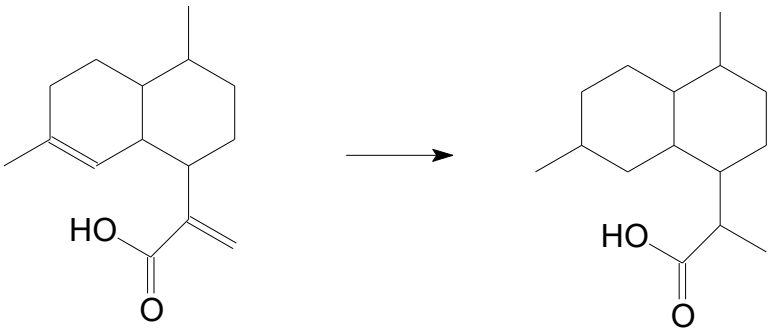
2 $CH_3COCH_2CH_3$ and $(CH_3)_2CHCHO$

Both molecules have the same molecular formula of C_4H_8O but different arrangement of atoms.

3 

Both molecules have the same molecular formula of $C_2H_2Cl_2$ but different arrangement of atoms. They are not cis-trans isomers.

27 Artemisinic acid is a useful intermediate for making the anti-malarial drug, artemisin.



Artemisinic acid artemisin

Which row shows the correct information about the above reaction?

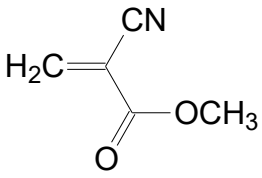
	Type of reaction	Reagents and condition
A	addition	H_2, uv light
B	elimination	NaOH in ethanol, heat
C	reduction	H_2, Ni, heat
D	reduction	$NaBH_4$ in methanol

Answer: **C**

The above reaction involves reduction of alkenes. H_2 molecules are added across the alkenes in the presence of Ni catalyst with heating.

$NaBH_4$ in methanol is used to reduced carbonyl groups but not alkenes.

28 The major component of 'superglue' is methyl cyanoacrylate, which polymerises as the glue sets.



Methyl cyanoacrylate

Which statement about this compound is **not** correct?

[You may assume -CN group is inert.]

A It can decolourises bromine water.

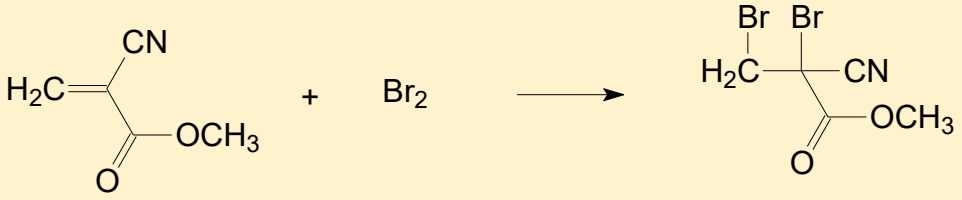
B It can be hydrolysed into propenoic acid.

C It forms instantaneous dipole-induced dipole interactions with poly(ethene).

D It forms hydrogen bondings with water molecules.

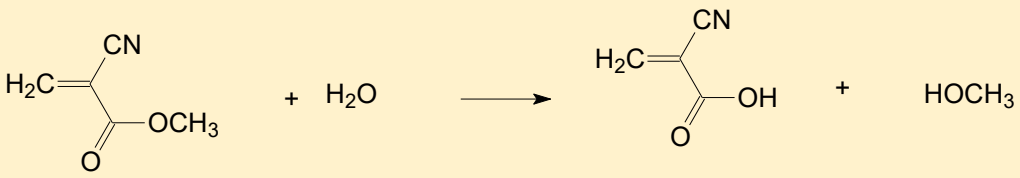
Answer: B

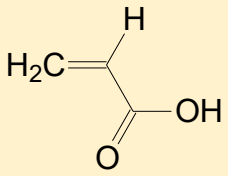
A Correct.



Bromine water decolourises.

B Incorrect.

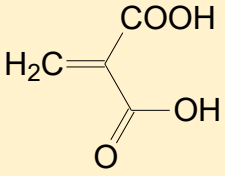




propenoic acid is not the product.

FYI:

Nitrile group (−CN) can be hydrolysed into carboxylic acid as well. The actual



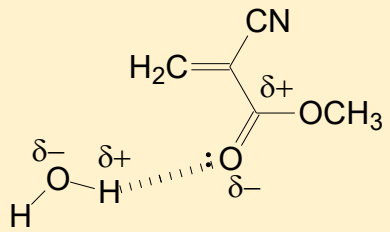
product.

This reaction is not required in H1 syllabus.

C Correct.

Methyl cyanoacrylate molecule has large electron cloud size to interact with non-polar poly(ethene) forming significant id-id attractions.

D Correct



H-bonding

It uses its lone pair to formed H-bondings with H atoms in water molecules.

29 Which of the following statements are true for thermoplastic polymers but not true for thermoset polymers?

1 The polymer burns upon heating.

2 The polymer can be recycled.

3 There is little or no cross-linkages between polymer chains.

A 1 only

B 1 and 2 only

C 2 and 3 only

D 3 only

Answer: C

	Statement	Reason
1	Both true.	Both polymers can burn on heating.
2	True for thermoplastic polymer but not true for thermosetting polymer.	Thermoplastic polymers can melt and remould into different shapes to be recycled. Thermosetting polymers once the shape is set will not be able to melt and remould. Hence, it cannot be recycled.
3	True for thermoplastic polymer but not true for thermosetting polymer.	Thermoplastic polymers are formed with little or no cross-linkages hence can melt. Thermosetting polymers are formed with many cross-linkages thus the shape is set.

30 Which of the following statements does **not** explain the climbing ability of geckos?

A The gecko's spatulae can deform to enable maximum contact with the wall.

B The gecko's spatulae form hydrogen bonding with the surface of the wall.

C The gecko's spatulae possess a high surface area to volume ratio.

D There are billions of spatulae per gecko.

Answer: B
Upon coming in contact with any surface, each spatula deforms to enable maximum contact with the wall surface, forming instantaneous dipole-induced dipole interactions.