Unit Code: H032/01
Qual Name: AS Level Chemistry A
Qual Title: Breadth in chemistry

Question Set	Q. No	Total Marks	AO	Spec Ref.	Topic	Question Subject	Additional Notes/Comments
1	1	1	AO1	2.1.1b	Atomic structure and isotopes	MCQ	2.1 Atoms and reactions
1	2	1	AO1	2.1.3c	Amount of substance	MCQ	2.1 Atoms and reactions
1	4	1	AO1	2.1.3h(ii)	Amount of substance	MCQ	2.1 Atoms and reactions
1	5	1	AO2	2.1.4d 1.1.4d	Acids	MCQ	2.1 Atoms and reactions
1	7	1	AO2	2.1.3a(ii),(iii),(iv), 2.1.3e(i)	Amount of substance	MCQ	2.1 Atoms and reactions
1	8	1	AO1	2.1.3c, 2.1.3a(i),(iv) 2.1.3e(i)	Amount of substance	MCQ	2.1 Atoms and reactions
1	9	1	AO2	2.1.3a(i),(iv)(v) 2.1.3e(i),(ii),g	Amount of substance	MCQ	2.1 Atoms and reactions
1	10	1	AO1	2.1.4c(ii)	Acids	MCQ	2.1 Atoms and reactions
1	11	1	AO1	2.1.5a	Redox	MCQ	2.1 Atoms and reactions
1	12	1	AO1	2.1.5a,d(ii)	Redox	MCQ	2.1 Atoms and reactions
1	13	1	AO1	2.1.3b(ii), c	Amount of substance	MCQ	2.1 Atoms and reactions
1	14	1	AO1	2.1.3h(ii), j	Amount of substance	MCQ	2.1 Atoms and reactions
1	15	1	AO2	2.1.3g, 2.1.3e(ii), 2.1.3a(v)	Amount of substance	MCQ	2.1 Atoms and reactions
1	16	1	AO2	2.1.3f	Amount of substance	MCQ	2.1 Atoms and reactions
1	17	1	AO2	2.1.2a(i), 2.1.3a(ii),(iv), e(ii)	Compounds, formulae and equations, Amount of substance	MCQ	2.1 Atoms and reactions
1	18	1	AO1	2.1.2a(i), 2.1.5a,b,c	Compounds, formulae and equations, Redox	MCQ	2.1 Atoms and reactions
1	19	1	AO2	3.1.3e(i),(ii),(iii), 2.1.5d(ii),f	The halogens, Redox	MCQ	3.1 The periodic table 2.1 Atoms and reactions
1	6	1	AO1	2.1.2a(i), 2.2.1d	Compounds, formulae and equations, Electron structure	MCQ	2.1 Atoms and reactions 2.2 Electrons, bonding and structure
1	3	1	AO2	2.1.3e(ii), 4.1.2e	Amount of substance	MCQ	2.1 Atoms and reactions 4.1 Basic concepts and hydrocarbons

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2	1	1	AO1	2.2.1b(iii), c(i)(ii)	Electron structure	MCQ	2.2 Electrons, bonding and structure
2	2	1	AO1	2.2.2j(ii)	Bonding and structure	MCQ	2.2 Electrons, bonding and structure
2	3	1	AO1	2.2.2g,h, 4.1.3b	Structure and bonding, Alkenes	MCQ	2.2 Electrons, bonding and structure 4.1 Basic concepts and hydrocarbons
3	1	1	AO1	3.1.1f,g, 2.2.2o	Periodicity, Bonding and structure	MCQ	3.1 The periodic table 2.2 Electrons, bonding and structure
3	2	1	AO1	3.1.3a, 2.2.2k	The halogens, Bonding and structure	MCQ	3.1 The periodic table 2.2 Electrons, bonding and structure
3	3	1	AO1	3.1.3g	The halogens	MCQ	3.1 The periodic table
3	4	1	AO1	3.1.1a(i)	Periodicity	MCQ	3.1 The periodic table
3	5	1	AO1	3.1.1c(ii)	Periodicity	MCQ	3.1 The periodic table
3	6	1	AO1	3.1.1g, 2.2.2k	Periodicity, Structure and bonding	MCQ	3.1 The periodic table
3	7	1	AO1	3.1.1a(i), (ii),(ii)	Periodicity	MCQ	3.1 The periodic table
4	1	1	AO2	3.2.1d(v), 3.2.1e, 1.1.3b	Enthalpy changes	MCQ	3.2 Physical chemistry
4	2	1	AO1	3.2.1g(i)	Enthalpy changes	MCQ	3.2 Physical chemistry
4	3	1	AO1	3.2.3b	Chemical equilibrium	MCQ	3.2 Physical chemistry
4	4	1	AO2	3.2.1g(ii)	Enthalpy changes	MCQ	3.2 Physical chemistry
4	5	1	AO2	3.2.1d(iv),h 1.1.4a	Enthalpy changes	MCQ	3.2 Physical chemistry
4	6	1	AO1	3.2.3b	Chemical equilibrium	MCQ	3.2 Physical chemistry
4	7	1	AO1	3.2.3f	Chemical equilibrium	MCQ	3.2 Physical chemistry
4	8	1	AO1	3.2.1b,c	Enthalpy changes	MCQ	3.2 Physical chemistry
4	9	1	AO1	3.2.1a, 3.2.1d(ii), 3.2.1f(ii)	Enthalpy changes	MCQ	3.2 Physical chemistry
4	10	1	AO1	3.2.2f, g(i)	Reaction rates	MCQ	3.2 Physical chemistry
4	11	1	AO1	3.2.3a,c	Chemical equilibrium	MCQ	3.2 Physical chemistry
5	1	1	AO2	4.1.1a	Basic concepts of organic chemistry	MCQ	4.1 Basic concepts and hydrocarbons
5	3	1	AO1	4.1.1e	Basic concepts of organic chemistry	MCQ	4.1 Basic concepts and hydrocarbons
5	4	1	AO1	4.1.2c	Alkanes	MCQ	4.1 Basic concepts and hydrocarbons
5	6	1	AO2	4.1.1e	Basic concepts of organic chemistry	MCQ	4.1 Basic concepts and hydrocarbons
5	8	1	AO2	4.1.3f(ii)	Alkenes	MCQ	4.1 Basic concepts and hydrocarbons
5	9	1	AO1	4.1.3c(i)(ii),d	Alkenes	MCQ	4.1 Basic concepts and hydrocarbons
5	10	1	AO1	4.1.3a	Alkenes	MCQ	4.1 Basic concepts and hydrocarbons

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5	11	1	AO1	4.1.1c(iii),(v),(vi),(vii)	Basic concepts of organic chemistry	MCQ	4.1 Basic concepts and hydrocarbons
5	12	1	AO1	4.1.3g	Alkenes	MCQ	4.1 Basic concepts and hydrocarbons
5	13	1	AO1	4.1.3j(ii)	Alkenes	MCQ	4.1 Basic concepts and hydrocarbons
5	2	1	AO1	4.1.1b(iv), 2.1.3b(ii)	Basic concepts of organic chemistry, Amount of substance	MCQ	4.1 Basic concepts and hydrocarbons 2.1 Atoms and reactions
5	5	1	AO2	4.1.2e, 2.1.3g	Alkanes, Amount of substance	MCQ	4.1 Basic concepts and hydrocarbons 2.1 Atoms and reactions
5	7	1	AO1	4.1.1b(iv), 2.1.3b(ii)	Basic concepts of organic chemistry, Amount of substance	MCQ	4.1 Basic concepts and hydrocarbons 2.1 Atoms and reactions
5	1	1	AO2	4.2.1d, 4.1.3c(i)	Alcohols, alkenes	MCQ	4.1 Basic concepts and hydrocarbons 4.2 Alcohols, haloalkanes and analysis
6	2	1	AO2	4.2.1c, 4.2.4c(ii), 4.2.4d	Alcohols, Analytical techniques	MCQ	4.2 Alcohols, haloalkanes and analysis
6	3	1	AO2	4.2.4g	Analytical techniques	MCQ	4.2 Alcohols, haloalkanes and analysis
6	4	1	AO1	4.2.4g	Analytical techniques	MCQ	4.2 Alcohols, haloalkanes and analysis
6	5	1	AO2	4.2.4g	Qualitative analysis	MCQ	4.2 Alcohols, haloalkanes and analysis
6	6	1	AO1	4.2.4a, b, e, 4.2.2e(i)	Qualitative analysis, Haloalkanes	MCQ	4.2 Alcohols, haloalkanes and analysis
6	7	1	AO2	4.2.4c(i),(ii), 4.2.3b(i)	Qualitative analysis, Organic synthesis	MCQ	4.2 Alcohols, haloalkanes and analysis
8	1a(i)	3	AO2	4.1.3f(i)(ii)(iv)	Alkenes	Alkenes and polymers	4.1 Basic concepts and hydrocarbons
8	1a(ii)	1	AO1	4.1.3f(i)(iv)	Alkenes		4.1 Basic concepts and hydrocarbons
8	1b(i)	2	AO2	2.1.2b, 4.1.3j(i)	Alkenes		4.1 Basic concepts and hydrocarbons 2.1 Atoms and reactions
8	1b(ii)	1	AO1	4.1.3k(iii)	Alkenes		4.1 Basic concepts and hydrocarbons
9	1a(i)	2	AO1	2.1.1b	Atomic structure and isotopes	Elements from the s-block and p-block of the periodic table.	2.1 Atoms and reactions
9	1a(ii)	2	AO1	2.1.1d(i)(ii)	Atomic structure and isotopes		2.1 Atoms and reactions
9	1b(i)	1	AO2	3.1.1c(i)	Periodicity		3.1 The periodic table
9	1b(ii)	1	AO3	2.1.3(a)(i–iii), 3.1.1c	Amount of substance		2.1 Atoms and reactions 3.1 The periodic table
9	1b(iii)	3	AO1	3.1.1c(i)	Periodicity		3.1 The periodic table
9	1b(iv)	2	AO1	3.1.1c(i), 2.2.1c(i)	Periodicity, Electron structure		3.1 The periodic table 2.1 Atoms and reactions
9	1c	5	AO3	3.1.4a(i), 2.1.2a(i)(ii), 1.1.3a, 1.1.4a	Qualitative analysis, Compounds, formulae and equations		3.1 The periodic table 2.1 Atoms and reactions

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10	1a	4	AO1	3.2.2f,g(ii)	Reaction rates	The industrial prepartion of methanol and Kc calculation	3.2 Physical chemistry
10	1b	2	AO1	3.2.2d(ii)	Reaction rates		3.2 Physical chemistry
10	1c	2	AO2	3.2.3f	Chemical equilibrium		3.2 Physical chemistry
11	1a	1	AO1	2.1.4b	Acids	The analysis of vinegar by acid–base titration	2.1 Atoms and reactions
11	1b(i)	1	AO2	2.1.2b	Compounds, formulae and equations		2.1 Atoms and reactions
11	1b(ii)	2	AO2	2.1.5e,f	Redox		2.1 Atoms and reactions
11	1c(i)	4	AO2	2.1.3e(iii), 2.1.3g 1.1.3a,b,c	Amount of substance		2.1 Atoms and reactions
11	1c(ii)	2	AO3	2.1.3i 1.1.1c, 1.1.4a,c,d	Amount of substance		2.1 Atoms and reactions
12	1a(i)	1	AO1	3.2.1f(ii)	Enthalpy changes	Enthalpy changes and analysis of alkenes	3.2 Physical chemistry
12	1a(ii)	3	AO2	3.2.1f(iii)	Enthalpy changes		3.2 Physical chemistry
12	1b	5	AO2, AO3	2.1.3e, 2.1.3f, 4.1.1b	Amount of substance, Basic concepts of organic chemistry		2.1 Atoms and reactions 4.1 Basic concepts and hydrocarbons
13	1a(i)	1	AO1	2.1.1b	Atomic structure and isotopes	Atomic structure and compounds of p-block elements	2.1 Atoms and reactions
13	1a(ii)	2	AO1	2.1.1d(ii)	Atomic structure and isotopes		2.1 Atoms and reactions
13	1b(i)	1	AO1, AO2	2.2.2e(i)(ii)	Structure and bonding		2.2 Electrons, bonding and structure
13	1b(ii)	3	AO1	2.2.2g,h	Structure and bonding		2.2 Electrons, bonding and structure
13	1c	1	AO1	3.1.1b(ii)	Periodicity		3.1 The periodic table
14	1a(i)	1	AO1	2.1.5d(i),e	Redox	Reactions of compounds of magnesium and phosphorus, including mole calculations.	2.1 Atoms and reactions
14	1a(ii)	3	AO2	2.1.5e, 2.1.3a(ii),(iv), 2.1.3e(i)(iii) 1.1.3a,b,c, 1.1.1c	Redox, Amount of substance		2.1 Atoms and reactions
14	1a(iii)	2	AO3	2.1.3i, 1.1.1a,c	Amount of substance		2.1 Atoms and reactions
14	1a(iv)	2	AO2, AO3	2.1.4c(ii)	Acids		2.1 Atoms and reactions
14	1b(i)	4	AO2	2.1.3a(ii), 2.1.3f	Amount of substance		2.1 Atoms and reactions
14	1b(ii)	1	AO2	2.1.2b	Compounds, formulae and equations		2.1 Atoms and reactions

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15	1a(i)	4	AO2	3.2.1d(ii),e, 2.1.3a(ii),e(iii) 1.1.3a,b,c, 1.1.1c	Enthalpy chnages, Amount of substance	Enthalpy change from experiment and rate of reaction.	3.2 Physical chemistry 2.1 Atoms and reactions
15	1a(ii)	2	AO3	4.1.2f 1.1.1c, 1.1.4a	Alkanes		4.1 Basic concepts and hydrocarbons
15	1b	4	AO1	3.2.2f,g(i)	Reaction rates		3.2 Physical chemistry
16	1a	5	AO2, AO1	4.1.1c(vii),e, 4.1.2c	Basic concepts of organic chemistry, Alkanes	Boiling points and chlorination of alkanes	4.1 Basic concepts and hydrocarbons
16	1b(i)	1	AO1	4.1.2f	Alkanes		4.1 Basic concepts and hydrocarbons
16	1b(ii)	2	AO1	4.1.1e	Basic concepts of organic chemistry		4.1 Basic concepts and hydrocarbons
16	1b(iii)	2	AO3	2.1.3a(iv), 4.1.2g, 2.1.2b	Amount of substance, Alkanes, Compounds, formulae and equations		4.1 Basic concepts and hydrocarbons 2.1 Atoms and reactions
17	1a(i)		AO2	4.2.1c(i)(ii),d	Alcohols	Reactions involving alcohols, including a mecahnsim and IR analysis.	4.2 Alcohols, haloalkanes and analysis
17	1a(ii)		AO1	4.1.1a	Basic concepts of organic chemistry		4.1 Basic concepts and hydrocarbons
17	1b(i)		AO1, AO2	4.1.1a	Basic concepts of organic chemistry		4.1 Basic concepts and hydrocarbons
17	1b(ii)		AO3	4.2.2a(i), 4.2.4d	Haloalkanes, Analytical techniques		4.2 Alcohols, haloalkanes and analysis
18	1a	1	AO1	2.1.1a	Atomic structure and isotopes	Atomic structure and the compounds of calcium, nitrogen and oxygen.	2.1 Atoms and reactions
18	1b	2	AO1	2.1.1b	Atomic structure and isotopes		2.1 Atoms and reactions
18	1c	2	AO1	2.2.1b(i), c(i),(ii)	Electron structure		2.2 Electrons, bonding and structure
18	1d(i)	2	AO1, AO2	2.2.2a	Structure and bonding		2.2 Electrons, bonding and structure
18	1d(ii)	2	AO2	2.1.4a, 2.1.2b	Acids		2.1 Atoms and reactions
18	1d(iii)	2	AO1	3.1.2b(i), 2.2.2b	Group 2, Structure and bonding		3.1 The periodic table 2.2 Electrons, bonding and structure
18	1d(iv)	2	AO2	2.2.2e(ii),(iii), 2.2.2g,h	Structure and bonding		2.2 Electrons, bonding and structure
19	1ai	1	AO2	2.1.4d, 2.1.3i 1.1.3a	Acids, Amount of substance	Acid–base titration to determine the concentration of hydrochloric acid.	2.1 Atoms and reactions
19	1aii	1	AO2	2.1.4d, 2.1.3i 1.1.3a	Acids, Amount of substance		2.1 Atoms and reactions
19	1b	3	AO2	2.1.4d,e, 2.1.3e(iii), g 1.1.3a,b	Acids, Amount of substance		2.1 Atoms and reactions
19	13c	2	AO3	2.1.3i 1.1.4c,d	Amount of substance		2.1 Atoms and reactions

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20	1a	3	AO1	3.1.3a, 2.2.2k,o	The halogens, Structure and bonding	Halogens and halides.	3.1 The periodic table 2.2 Electrons, bonding and structure
20	1b	5	AO3	3.1.4a(i),(ii), 3.1.3g, 2.1.2b 1.1.1a,c	Qualitatice analysis, The halogens, Compounds, formulae and equations		3.1 The periodic table 2.1 Atoms and reactions
21	1a(i)	4	AO1, AO2	3.2.3b	Chemical equilibrium	Industrial preparation ammonia, NH3., Kc and enthalpy calculations	3.2 Physical chemistry
21	1a(ii)	2	AO2	3.2.3f	Chemical equilibrium		3.2 Physical chemistry
21	1b(i)	1	AO1	3.2.1d(i)(iii)	Enthalpy changes		3.2 Physical chemistry
21	1b(ii)	3	AO2	3.2.1g(ii)	Enthalpy changes		3.2 Physical chemistry
22	1a(i)	3	AO1, AO2	4.2.1c(i)(ii)(iii)	Alcohols	Reactions of alcohols and alkanes	4.2 Alcohols, haloalkanes and analysis
22	1a(ii)	1	AO1	4.1.1a	Basic concepts of organic chemistry		4.1 Basic concepts and hydrocarbons
22	1a(iii)	1	AO2	4.2.1b	Alcohols		4.2 Alcohols, haloalkanes and analysis
22	1b(i)	3	AO1, AO2	4.1.2f, 4.1.1g	Alkanes, Basic concepts of organic chemistry		4.1 Basic concepts and hydrocarbons
22	1b(ii)	1	AO2	2.1.2b, 4.1.2g	Compounds, formulae and equations, Alkanes		4.1 Basic concepts and hydrocarbons 2.1 Atoms and reactions
22	1b(iii)	3	AO3	4.1.2g, 2.1.3a(i)(v), 2.1.3e(i)(ii),	Alkanes, Amount of substance		4.1 Basic concepts and hydrocarbons 2.1 Atoms and reactions