Unit Code H033/02
Qual Name AS Level Chemistry B
Qual Title: Chemistry in depth

Question Set	Q. No	Total Marks	AO	Spec Ref.	Topic	Question Subject
1	1a	2	1	DF(h)	catalysis	The main subject of this question set is catalysis predominantly set within the context of DF and OZ.
1	1bi	1	3	DF(h); 1.1.1b	practical investigation of catalysts	
1	1bii	1	3	DF(h); OZ(f); 1.1.1b	practical investigation of catalysts	
1	1ci	1	2	DF(h); OZ(f); 1.1.3d; 1.1.4b	practical investigation of catalysts - graph plotting	
1	1cii	1	3	DF(h); OZ(f); 1.1.4a	practical investigation of catalysts - qualitative interpretation of graph	
1	1ciii	2	2	DF(h); OZ(f); 1.1.3b	practical investigation of catalysts - quantitative interpretation of graph	
1	1d	2	1	DF(j); EL(d)	use of skeletal formulae to represent cracking	
1	1ei	2	1	DF(i)	model of heterogeneous catalysis	
1	1eii	1	2	DF(i); DF(h)	model of heterogeneous catalysis	
1	1fi	1	1	OZ(p)	equation for photodissociation	
1	1fii	3	1	OZ(u)	bond energy calculation for photodissociation	
1	1g	6	1; 2; 3	OZ(e); OZ(g); OZ(h); OZ(q); O(r)	depletion of ozone in stratosphere (LOR)	
2	2a	1	2	DF(p)	repeating unit of polymer	The main subject of this question set is alkene/alcohol chemistry predominantly set within the context of DF and WM.
2	2bi	1	2	DF(b)	sigma and pi bonds	
2	2bii	3	2	EL(k)	bond angles	
2	2ci	1	1	DF(o), (i)	alkene/bromine water colour change	
2	2cii	1	1	DF(q)	mechanism of addition to alkenes	
2	2ciii	1	2	DF(q)	mechanism of addition to alkenes	

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2	2d	2	2	DF(t)i	E/Z isomerism	
2	2ei	1	1	DF(o)ii	alkene to haloalkane conversion	
2	2eii	1	1	DF(c)	3-D arrangment of tetrahedral C	
2	2eiii	1	1	WM(b)	classification of alcohols	
2	2eiv	1	2	WM(d)ii	oxidation of alcohols	
3	3ai	1	2	EL(b)i,ii	calculation of amount	The main subject of this question set is halogen chemistry predominantly set within the context of ES and EL (for calculations).
3	3aii	1	2	EL(b)i,ii	calculation of mass	
3	3aiii	1	2	EL(b)i,ii; DF(a)	calculation of volume	
3	3b	1	2	ES(c)i,ii	electrolysis (molten v aqueous)	
3	3c	1	2	ES(c)i,ii	electrolysis (electrode half-eqn)	
3	3d	2	2	ES(c)i,ii	electrolysis (aqueous observations)	
3	3ei	1	2	ES(j)	halogens in cyclohexane	
3	3eii	1	2	ES(j); EL(d)	ionic eqn for halogen displacement	
3	3fi	1	2	ES(d)i	ionic half-eqn for redox reaction	
3	3fii	1	1	ES(d)iii	identifying oxidising agent in eqn	
3	3g	3	2	ES(i)	explaining oxidising strength of halogens	
4	4ai	4	3	EL(p); EL(q)	explaining relative reactivities of Ca/Ba	The main subject of this question set is Group 2 chemistry predominantly set within the context of EL (with calculations based around an acid-base titration).
4	4aii	2	2	DF(a); EL(b)ii; 1.1.3a,b,c	reacting amounts - gas vol calc	
4	4b	6	3	EL(o); EL(p); EL(r)	thermal stabilities of Gp2 carbonates (LOR)	
4	4ci	1	3	EL(c)ii; 1.1.4d	titration calc	
4	4cii	1	3	EL(c)ii; 1.1.4b	titration calc	
4	4ciii	3	2	EL(c)i; 1.1.3a,b	titration calc	
4	4d	1	1	EL(a)	meaning of atomic number	
4	4e	1	3	EL(n)	periodic variation of m.p.	
5	5ai	2	1	EL(q)	first ionisation energy eqn	The main subject of this question set is Group 2 chemistry predominantly set within the context of EL.
5	5aii	2	2	EL(q)	explaining trend in first I.E.	
5	5b	1	2	EL(p)	eqn Group 2 element with water	

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5	5c	2	3	EL(o)	Periodic Table predictions	
5	5d	6	2,3	EL(p); EL(r); EL(b)I; EL(c)I; 1.1.3a,b	Identifying a Gp2 compound from various data (LOR)	
5	5e	1	2	DF(a); EL(b)i	reacting amounts - gas vol	
6	6a	2	1	DF(m); DF(r); DF(s)	names/structures of alcohols	The main subject of this question set is alcohol chemistry predominantly set within the context of DF (incorporating enthalpy of combusion) and DF (for identification using spectra).
6	6b	2	2	DF(e)	bond breaking/making and DH	
6	6c	1	1	DF(n); EL(d)	eqn for burning alcohols	
6	6d	3	1	DF(f); 1.1.3b	calc. enthalpy of combustion	
6	6e	1	3	DF(f); 1.1.4e	expt. set-up for det. enth. of comb.	
6	6f	3	2	DF(g); DF(e)	calc. using bond enthalpies and DH	
6	6g	6	2, 3	WM(d)I,ii,iii; WM(h); WM(i)I; WM(j); 1.1.3a	identifying organic compounds using i.r and mass spectra (LOR)	
7	7ai	1	1	OZ(p)ii; EL(d)	radical chain reaction	The main subject of this question set is haloalkane chemistry predominantly set within the context of OZ.
7	7aii	2	1, 2	OZ(p)iii	radical chain reaction	
7	7aiii	1	3	OZ(p)i	radical chain reaction v nuc. subst.	
7	7b	4	3	OZ(b); OZ(c); OZ(k)i	factors affecting relative b.p. of haloalkanes	
7	7ci	1	2	OZ(m)	use of 'curly arrows' in mechanisms	
7	7cii	1	1	OZ(l)	name of mechanism	
7	7ciii	1	1	OZ(j)ii; OZ(k)ii	name of functional group	
7	7di	1	2	OZ(n); 1.1.3a	investigating rate of hydrolysis of haloalkanes	
7	7dii	1	3	OZ(n); 1.1.1a	investigating rate of hydrolysis of haloalkanes	
7	7diii	3	2	OZ(n); 1.1.3a	investigating rate of hydrolysis of haloalkanes	
7	7e	1	1	OZ(t)	effect of u.v. on a haloalkane	
7	7f	3	2	OZ(u); EL(w)iii	calc. bond enthalpy using E=hn	
7	7gi	1	2	OZ(i)	calc. conc. in ppm	
7	7gii	1	2	OZ(q); EL(d)	catalytic breakdown of stratospheric ozone	
7	7giii	1	1	OZ(h); DF(h)	catalytic breakdown of stratospheric ozone	

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7	7giv	1	1	OZ(r)ii	problems of tropospheric ozone	
8	8a	1	2	ES(e)	changes in oxidation states	The main subject of this question set is halogen chemistry predominantly set within the context of ES and incorporating an iodine-thiosulfate titration.
8	8b	1	1	ES(d)ii	redox in terms of electrons	
8	8ci	1	1	ES(k); 1.1.3a	testing for chloride ions	
8	8cii	2	3	ES(k); 1.1.3a	testing for chloride ions	
8	8di	1	1	EL(f)ii	writing electron configurations	
8	8dii	2	1	ES(j); 1.1.1a	expt'l halogen displacement	
8	8diii	1	1	ES(j); EL(d)	eqn for halogen displacement	
8	8div	2	2	ES(i)	explaining halogen displacement	
8	8e	3	2	ES(c)i; ES(f); 1.1.3b	calc in iodine-thiosulfate titration	
9	9ai	1	1	DF(j)	cracking eqn (molecular formulae)	The main subject of this question set is organic chemistry predominantly set within the context of DF and WM (for analysis of spectra in identification).
9	9aii	1	2	DF(r); DF(s)	skeletal formula for an alkane	
9	9b	4	3	DF(j); 1.1.1a	correcting/explaining incorrect diagram of apparatus for lab cracking	
9	9c	1	2	DF(p)	naming monomer from given polymer structure	
9	9d	2	1	DF(t)	explaining steriosomerism in but-2-ene	
9	9e	3	1	DF(q); DF(o)i	drawing mechanism for an electrophilic addition	
9	9f	4	2	DF(a)	calc using pV=nRT	
9	9gi	1	3	DF(r); WM(i)i; WM(j)	using i.r. and mass spectra to identify an organic compound	
9	9gii	1	3	DF(r); WM(i)i; WM(j)	using i.r. and mass spectra to identify an organic compound	
9	9giii	1	3	DF(r); WM(i)i; WM(j)	using i.r. and mass spectra to identify an organic compound	
9	9h	6	1, 2	DF(u)	discussion of adv/disadv biofuels/fossil fuels (LOR)	

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10	10a	2	2	EL(c)i,ii; ES(d)I; 1.1.3a	electrode half-eqn for electrolysis of NaCl(aq)	The main subject of this question set is halogen chemistry predominantly set within the context of ES and EL (for both iodine-thiosulfate and % yield calculations).
10	10bi	1	1	ES(g)	naming using oxidation states	
10	10bii	2	2	ES(n)	hazards of chlorine	
10	10ci	4	2	ES(f); EL(c)i; 1.1.3a	calc using iodine-thiosulfate titration data	
10	10cii	3	3	ES(f); EL(c)ii; 1.1.1c	identifying/correcting mistakes in iodine-thiosulfate expt	
10	10d	1	2	ES(d)ii,iii	identifying species in redox reactions	
10	10e	1	1	ES(h)	appearance of bromine	
10	10fi	1	1	ES(k); 1.1.3a	observation in bromide test	
10	10fii	3	1	EL(b)I; 1.1.3b	% yield calc	
11	11a	1	2	EL(h)	nuclear eqn	The main subject of this question set is the chemistry of elements, structure and bonding and molecular shape set within the context of EL.
11	11b	3	3	EL(w)i,ii,iii	absorption/emission spectra	
11	11c	2	2	EL(x)	calc of isotopic abundance	
11	11di	1	1	EL(f)ii	electron configuration	
11	11dii	1	1	EL(j)	structure/bonding	
11	11diii	1	1	EL(j)	structure/bonding	
11	11e	3	1, 3	EL(k)	shapes of molecules	
12	12ai	2	3	OZ(n)	bond polarity v bond enthalpy	The main subject of this question set is atmospheric chemistry set within the context of OZ.
12	12aii	2	3	OZ(n)	bond polarity v bond enthalpy	
12	12b	2	2	EL(b)i	calc molecular formula	
12	12c	3	2	OZ(u)	calc bond enthalpy using E=hn	
12	12d	6	1, 2	OZ(q)	ozone in stratosphere and troposphere	