

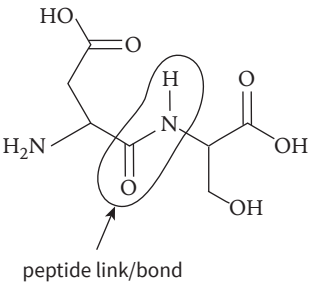
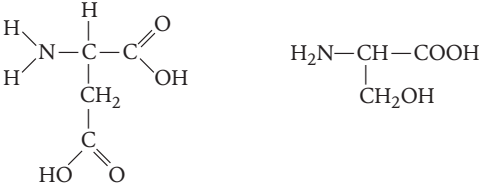
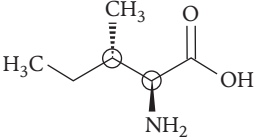
A Level AQA Chemistry

Chapter 22 – answers

Question	Answers	Extra information	Mark	AO Spec reference
01.1			1	3.3.7, Ms 4.2
01.2		Check that this is not the same isomer drawn rotated	1	3.3.7, MS 4.2
01.3	Two compounds which have the same chemical formula but different spatial arrangement of atoms, and are non super-imposable mirror images of each other.		1	3.3.7
01.4			1	3.3.13.1
01.5			1	3.3.13.1
01.6			1	3.3.13.2, MS 4.2

A Level AQA Chemistry

Chapter 22 – answers

Question	Answers	Extra information	Mark	AO Spec reference
02.1	 <p>peptide link/bond</p>		1	3.3.13.2
02.2	Condensation (polymerisation)		1	3.3.13.2
02.3		One mark for each amino acid drawn correctly.	2	3.3.13.2, MS 4.2
02.4	Thin-layer chromatography could be used to separate the amino acids UV light/ninhydrin could be used to highlight/observe the amino acids The amino acids could then be identified using their R_f values compared to known values	OWTTE	1 1 1	3.3.13.2
03.1	A compound that contains both an amine group and a carboxylic acid group		1	3.3.13.1
03.2		Either chiral centre can be circled.	1	3.3.7, MS 4.2

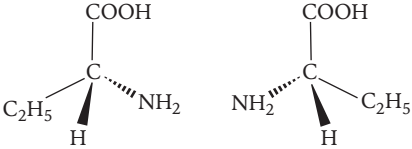
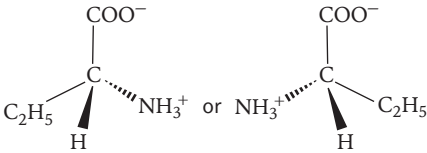
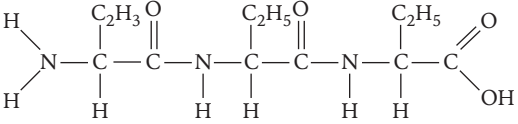
A Level AQA Chemistry

Chapter 22 – answers

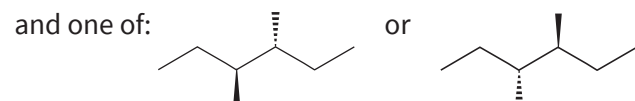
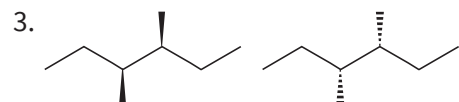
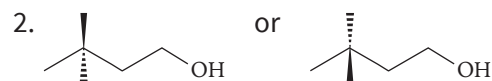
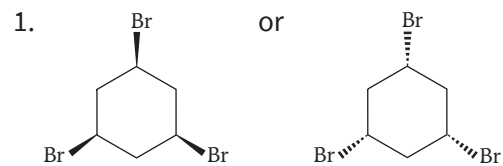
Question	Answers	Extra information	Mark	AO Spec reference
03.3		Make sure there are no repeats of structures	3	3.3.7, 3.2.5.3, MS 4.2
03.4			2	3.3.13.1
04.1	Enzymes act as catalysts Provide a pathway with a lower activation energy (and therefore increase the rate of the chemical reaction)		1 1	3.3.13.3
04.2	The drugs can have a similar shape/can fit in to the stereospecific active site of the protein (blocking the active site/acting as a competitor)		1 1	3.3.13.3
05.1	Hydrogen bonds/bonding		1	3.3.13.4
05.2			2	3.3.13.4, MS 4.2
05.3	ligand substitution / replacement where platinum of cisplatin bonds to N on guanine, (which alters the structure of the DNA preventing replication)		1 1	3.3.13.5
05.4	β -pleated sheets		1	3.3.13.2

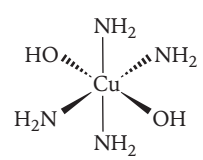
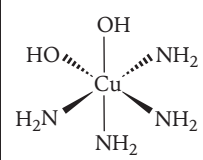
A Level AQA Chemistry

Chapter 22 – answers

Question	Answers	Extra information	Mark	AO Spec reference																				
05.5	The primary structure is the order of amino acids.		1	3.3.13.1																				
06.1	<table border="1"> <thead> <tr> <th>C</th> <th>H</th> <th>N</th> <th>O</th> </tr> </thead> <tbody> <tr> <td>46.6/12.0</td> <td>8.7/1.0</td> <td>13.6/14.0</td> <td>31.1/16.0</td> </tr> <tr> <td>= 3.8...</td> <td>= 8.7</td> <td>= 0.971...</td> <td>= 1.94...</td> </tr> <tr> <td>3.88/0.971</td> <td>8.7/0.971</td> <td>0.971/ 0.971</td> <td>1.94/0.971</td> </tr> <tr> <td>4</td> <td>9</td> <td>1</td> <td>2</td> </tr> </tbody> </table> <p>Empirical formula = $C_4H_9NO_2$ Which has M_r of 103.0 g mol^{-1} so that must be the molecular formula.</p>	C	H	N	O	46.6/12.0	8.7/1.0	13.6/14.0	31.1/16.0	= 3.8...	= 8.7	= 0.971...	= 1.94...	3.88/0.971	8.7/0.971	0.971/ 0.971	1.94/0.971	4	9	1	2	Need a comment about the empirical formula being the molecular formula/having the $M_r = 103$ for the last mark.	1 1 1 1	3.1.2.4, MS 0.1, MS 0.2, MS 2.2,
C	H	N	O																					
46.6/12.0	8.7/1.0	13.6/14.0	31.1/16.0																					
= 3.8...	= 8.7	= 0.971...	= 1.94...																					
3.88/0.971	8.7/0.971	0.971/ 0.971	1.94/0.971																					
4	9	1	2																					
06.2		Check that there are two different isomers here, not the same isomer but rotated Allow e.c.f. from 06.1	2	3.3.7, MS 4.1																				
06.3		Either zwitterion could have been drawn	1	3.3.13.1																				
06.4	Ion with both a positive charge and a negative charge at the same time		1	3.3.13.1																				
06.5			2	3.3.12.1, MS 4.2																				
06.6	Condensation		1	3.3.12.1																				

Skills box answers:



4.	<i>trans</i>	<i>cis</i>
	for example: 	for example: 
Students' diagrams must clearly show octahedral arrangement		

A Level AQA Chemistry

Chapter 22 – answers

5.

<i>trans</i>	<i>cis</i>
Students' diagrams must clearly show square planar arrangement	

6. For example

