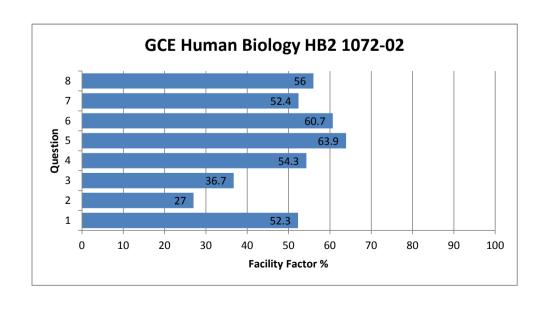


WJEC 2014 Online Exam Review

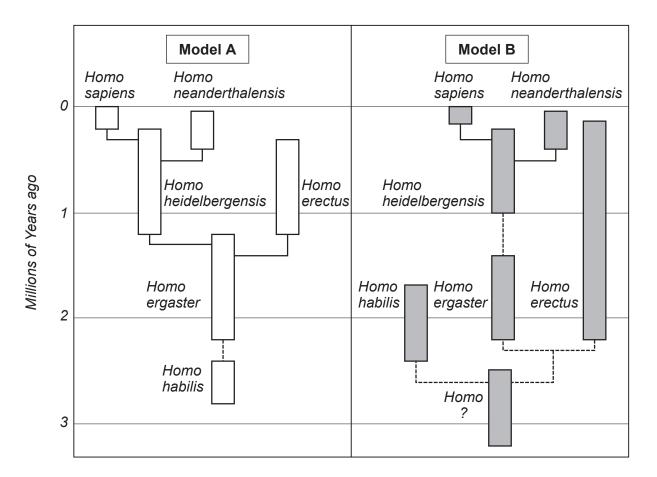
GCE Human Biology HB2 1072-02

All Candidates' performance across questions

?	?	?	?	?	?	?	
Question Title	N	Mean	S D	Max Mark	F F	Attempt %	
1	1388	2.1	1.2	4	52.3	100	
2	1386	2.4	2	9	27	99.9	
3	1387	2.2	1.5	6	36.7	99.9	١
4	1387	6.5	3	12	54.3	99.9	ŀ
5	1387	7.7	2.3	12	63.9	99.9	
6	1387	5.5	2	9	60.7	99.9	١
7	1388	4.2	1.8	8	52.4	100	
8	1386	5.6	3.1	10	56	99.9	



3. (a) The diagrams below show two different models of human evolutionary relationships based on different interpretations of the same fossil evidence.



(i)	Name the type of diagram used to represent these evolutionary relationships .
	[1

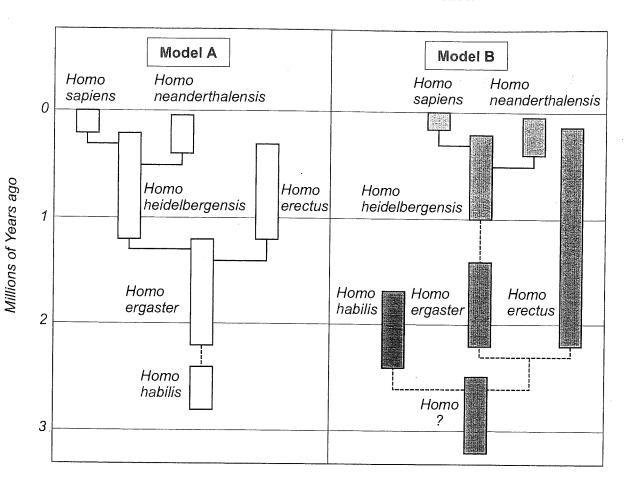
(ii)	Describe one similarity and one difference in the evolutionary relationships suggested by Model A and Model B . [2]
	Similarity
	Difference

	(iii)	Suggest why dotted lines have been used in parts of the diagrams. [7]	l] or
(b)		ence shows that <i>Homo sapiens</i> , <i>Homo neanderthalensis</i> and <i>Homo heidelbergens</i> xisted in Europe for several thousand years and may have interbred.	s
		gest how DNA analysis is helping scientists to develop a better understanding of an evolution.	of !]

Examiner only

6

3. (a) The diagrams below show two different models of human evolutionary relationships based on different interpretations of the same fossil evidence.



(i) Name the type of diagram used to represent these **evolutionary relationships**. [1]

Evolutionary tree

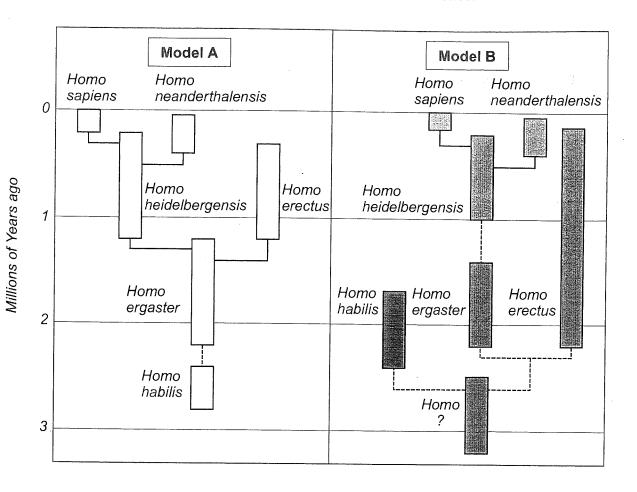
(ii) Describe **one** similarity and **one** difference in the evolutionary relationships suggested by Model **A** and Model **B**. [2]

Similarity The homosopiens and homo reanderthalenis both come grow the same parat ancestor, the homo heidelbergensis

Difference In model B the homoerectus than the around longer than the in model A.

(iii) Suggest why dotted lines have been used in parts of the diagrams. [1]	Only
These pathways are just guesses and theregre	
arend proven but enough evidence makes them possible links	
Evidence shows that <i>Homo sapiens</i> , <i>Homo neanderthalensis</i> and <i>Homo heidelbergensis</i> co-existed in Europe for several thousand years and may have interbred.	
Suggest how DNA analysis is helping scientists to develop a better understanding of human evolution. [2]	
The arrivo acids from the Sibrogen in the borres of these	
human evolutionist can be booked at and then the choser	
that the Sequence of amino acids are to each other	
the more closely related they are.	.
	6

3. (a) The diagrams below show two different models of human evolutionary relationships based on different interpretations of the same fossil evidence.



(i) Name the type of diagram used to represent these **evolutionary relationships**. [1]

 \bigcirc

Evolutionary tree

(ii) Describe **one** similarity and **one** difference in the evolutionary relationships suggested by Model **A** and Model **B**. [2]



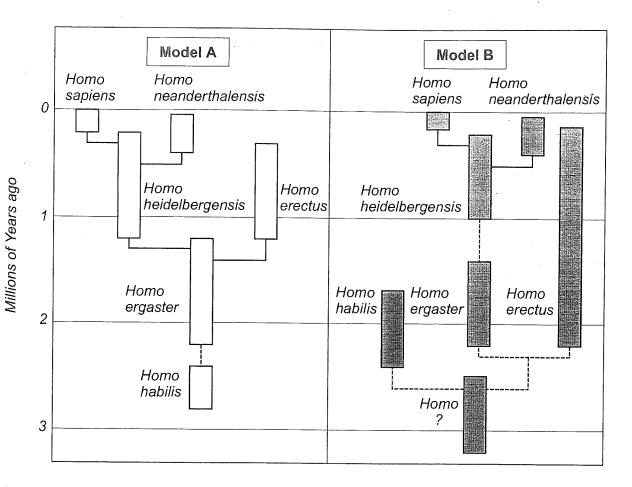
Similarity The homo Sopiens and homo reanderthalenis both come grow the Same parat ancostor the homo heidelbergensis

Difference In model B the homo executes the box bear around longer than the in model A.



Examiner only

3. (a) The diagrams below show two different models of human evolutionary relationships based on different interpretations of the same fossil evidence.



(i) Name the type of diagram used to represent these **evolutionary relationships**.

Hierarchical [1]

Hierarchical type .

(ii) Describe **one** similarity and **one** difference in the evolutionary relationships suggested by Model **A** and Model **B**.

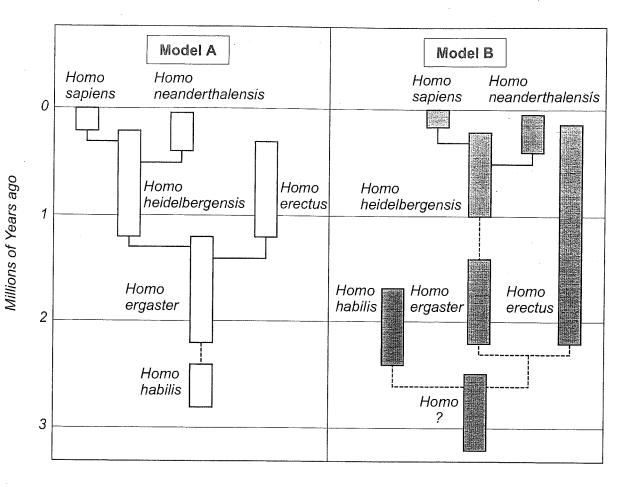
Similarity Homo sopiens and Homo neardertholorsis
CO-existed for a period of time

Difference In model B, the Homo erectus
existed at the same time as Homo
sapiens, in model A Homo erectus was
extinct before Homo sapiens evolved.

	(iii) Suggest why dotted lines have been used in parts of the diagrams. [1]	only
	Fossils do not go back as for knough to	
	determine the common ancestor, cannot be centain.	
~(b)	Evidence shows that <i>Homo sapiens</i> , <i>Homo neanderthalensis</i> and <i>Homo heidelbergensis</i> co-existed in Europe for several thousand years and may have interbred.	
	Suggest how DNA analysis is helping scientists to develop a better understanding of human evolution. [2]	
Th	u greater percentage of genes two species	
ha	re in common, the closer the relationship.	
The	erefore the closer they are in evolution.	

Examiner only

3. (a) The diagrams below show two different models of human evolutionary relationships based on different interpretations of the same fossil evidence.



(i) Name the type of diagram used to represent these **evolutionary relationships**.

Hierarchial Hierarchial tree.



(ii) Describe **one** similarity and **one** difference in the evolutionary relationships suggested by Model **A** and Model **B**. [2]

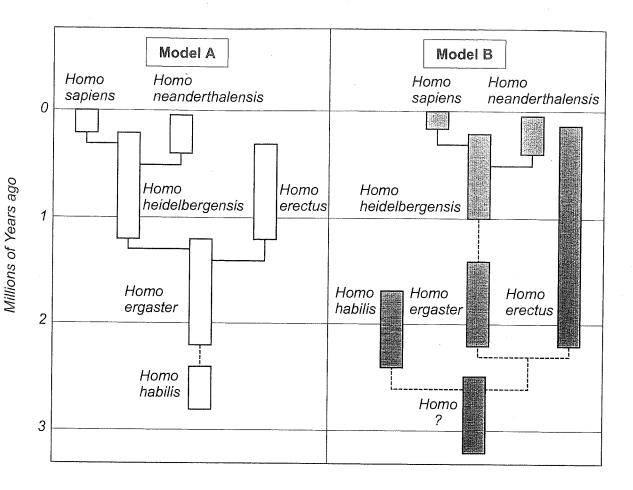


Similarity Homo sopiens and Homo neardertholorsis

Difference In model B, the Homo erectus
existed at the same time as Homo
Sapiens in model A Homo erectus was
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		Examiner
	(iii) Suggest why dotted lines have been used in parts of the diagrams. [1]	only O
	Fossils do not go back as for knough to	
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√(b)	Evidence shows that <i>Homo sapiens</i> , <i>Homo neanderthalensis</i> and <i>Homo heidelbergensis</i> co-existed in Europe for several thousand years and may have interbred.	
	Suggest how DNA analysis is helping scientists to develop a better understanding of human evolution. [2]	\bigcirc
Th	e operater percentage of genes two spries	
ha	re in common, the closer the relationship.	
The	vefore the closer they are in evolution.	
	J	

3. (a) The diagrams below show two different models of human evolutionary relationships based on different interpretations of the same fossil evidence.



(i) Name the type of diagram used to represent these evolutionary relationships.

tree diagram.

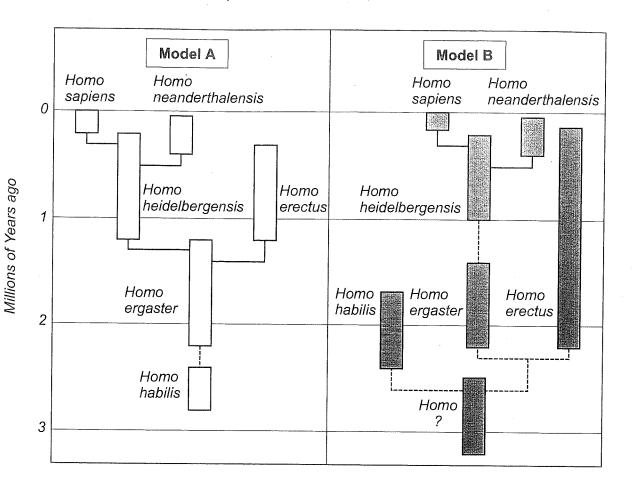
(ii) Describe **one** similarity and **one** difference in the evolutionary relationships suggested by Model **A** and Model **B**. [2]

similarity Meanderthalensus and Homo Sapuens
both house the same similar ancester the
Homo heidelbergensus in Model A and B

Difference Homo habitis is a dead end in Model
B yet in Model A it is an ancester to au
the other Homos.

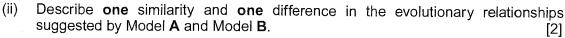
		only
	(iii) Suggest why dotted lines have been used in parts of the diagrams. [1]	
	This suggests together who will be never for Continue	THE REAL PROPERTY AND ADDRESS OF THE PERSON
	This suggests togethere there is uncertainty as it is only a theory	
(b)	Evidence shows that <i>Homo sapiens</i> , <i>Homo neanderthalensis</i> and <i>Homo heidelbergensis</i> co-existed in Europe for several thousand years and may have interbred.	
	Suggest how DNA analysis is helping scientists to develop a better understanding of human evolution. [2]	
	Analysing the DNA means you can see common links between homosapiers and other	
	common links between homosapiers and other.	
	Homos which would suggest that we would	
	Homos which would suggest that we would howe a common ancestor.	
		6

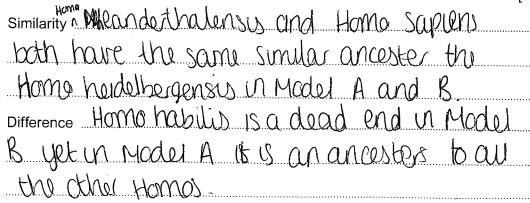
3. (a) The diagrams below show two different models of human evolutionary relationships based on different interpretations of the same fossil evidence.



(i) Name the type of diagram used to represent these **evolutionary relationships**. [1]

tree diagram.





	(iii) Suggest why dotted lines have been used in parts of the diagrams. [1]	D y
	This suggests that we also not be never for continue	
	that there is uncertainty as it is mly a theory	
(b)	Evidence shows that <i>Homo sapiens</i> , <i>Homo neanderthalensis</i> and <i>Homo heidelbergensis</i> co-existed in Europe for several thousand years and may have interbred.	
	Suggest how DNA analysis is helping scientists to develop a better understanding of human evolution. [2]	\bigcirc
	Analysing the DNA means you can see	
	Analysing the DNA means you can see common links between homosapiens and other	
	Homos which would suggest that we would	
	have a comman ancorter	

020005

Examiner

	Describe two ways in which food canal.	is broken down mechanically in the human alime
	l	
	II	
(b)	The diagrams show the digestion	of a molecule of starch and a molecule of protein
	STARCH	PROTEIN
•	Enzyme A Molecule B Enzyme C	Enzyme E Enzyme F Enzyme E
	(i) In the digestion of starch nate of Enzymes A and C:	

.....

(c) (i)			ne the types of enzyme shown at E and F . [2]
(ii)	Pepsir secret		mes involved in the digestion of proteins. Both are ors. Complete the table to give the names of the
Enzyme	l	Name of precursor	Activated by
pepsin		pepsinogen	
trypsin		trypsinogen	
(iii)	urea ir (gland	nto alkaline ammonia. Ai s).	es of bacterium that lives in the stomach and digests mmonia is toxic to epithelial cells lining the gastric pits pylori can lead to the development of a peptic ulcer. [3]
·····			

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proc	cesses					
(a)	can					[2
	l	In the Mo	wh Food	is a	rushed a	d
		Chewed up	by teeth			
	11	In the Stor	rach Muse	les [ythrically	Chur Chur
	t	he Sood up,	and hence	= bre	ul-	-
(b)	The	diagrams show the dig	estion of a molecul	le of star ch	h and a molecu	ıle of protein.
	S	STARCH		F	PROTEIN	
-	00	••••) —[4]—(5)
		Enzyme A	,	Enzyme	E	
	9-0					
		Molecule	B Enzyr	me F	Enzyme E	
		Enzyme C				
	6	*				
		Molecule	e D			
	(i)	In the digestion of sta	rch name:			
		Enzymes A and C :				[1]
		A Amalase		c	Mattase	
•		Molecules B and D :				[1]
		B Maltose		D G	Throse	
	(ii)	Name two places in takes place.	the alimentary can	nal where	digestion caus	ed by enzyme A [1]
		The Mouth		The	duodenin	

(c) (i) In the digestion of protein name the types of enzyme shown at E and F.

E Endopepsidases

F Scopepsidases Excopepsidales

(ii) Pepsin and trypsin are enzymes involved in the digestion of proteins. Both are secreted as inactive precursors. Complete the table to give the names of the substances responsible for their activation. [2]

Enzyme	Name of precursor	Activated by
pepsin	pepsinogen	Hydrochloric Acid
trypsin	trypsinogen	Hydrogen perotide

(iii) Helicobacter pylori is a species of bacterium that lives in the stomach and digests urea into alkaline ammonia. Ammonia is toxic to epithelial cells lining the gastric pits (glands).

Suggest how infection with *H.pylori* can lead to the development of a peptic ulcer.

[3]

Exa	an	nir	ne
(วท	ly	

proc	esses		of food by a combination of mechanical and chemic	cal
(a)	Des cana	cribe <mark>two</mark> ways in which food al.	d is broken down mechanically in the human alimenta	ary [2] (
	l	In the mouth	500d is Gushed and	<mark> </mark>
			y teeth	
			h Muscles rythmically thum Chu	
			d hence breat	
(b)		•	n of a molecule of starch and a molecule of protein.	
			'	
	S	TARCH	PROTEIN	
	9-0	0000		
		Enzyme A	Enzyme E	
		Liizyine A		
)-()	Molecule B		- Constitution
		Enzyme C	Enzyme F Enzyme E	
		Litzyme		
	0 _	•		
ı		Molecule D		
	•			
	(i)	In the digestion of starch na	ame:	
		Enzymes A and C :	ſ·	1] [
		a Amalase	c Mattase	
		Molecules B and D :	ſ	1]
			n Glucos	
		B Maltose	D CT Wase	1.
	(ii)		limentary canal where digestion caused by enzyme i	A



(c) (i) In the digestion of protein name the types of enzyme shown at E and F.

E Endopepsidases

F Scopepsidases Excapepsidables

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[2]



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Suggest how infection with *H.pylori* can lead to the development of a peptic ulcer.



The H. pylori Causes weaknesses in the Mucus Lining of the Stomach. These weaknesses become instanmed and the hydrochloric acid along with the engines damage the epithilal cells and hence Cause an when The H. pylori sinks weaknesses in Mucus layer and totins given one by the bacteria tenslame and cause cucers in Stomach ining



4.		stion involves the breaking down of food by a combination of mechanical and chemesses.	iical
	(a)	Describe two ways in which food is broken down mechanically in the human alimentanal. I. Peristalsis along the ethinicitary canat. oesophagus. II. Chewing in the mouth.	[2]
	(b)	The diagrams show the digestion of a molecule of starch and a molecule of protein.	
		STARCH PROTEIN	
	-0-		
		Enzyme E	
		Molecule B Enzyme F Enzyme E	17 mm
		Enzyme C	
		Molecule D	
		(i) In the digestion of starch name:	
		Enzymes A and C :	[1]
		A Cor Carbohydrase c Amylase.	
		Molecules B and D :	[1]
		B Disaccharides D Glucose.	

Name **two** places in the alimentary canal where digestion caused by enzyme **A** takes place. [1]

(ii)

(c)

(i) In the digestion of protein name the types of enzyme shown at E and F.

E Endo peptidase

F Endopeptidase

(ii) Pepsin and trypsin are enzymes involved in the digestion of proteins. Both are secreted as inactive precursors. Complete the table to give the names of the substances responsible for their activation. [2]

Enzyme	Name of precursor	Activated by
pepsin	pepsinogen	peptidase Tycoprotein.
trypsin	trypsinogen	Lysino gase gly

(iii) Helicobacter pylori is a species of bacterium that lives in the stomach and digests urea into alkaline ammonia. Ammonia is toxic to epithelial cells lining the gastric pits (glands).

Suggest how infection with *H.pylori* can lead to the development of a peptic ulcer.

As H. pylori produces ammonia which is toxic to the epithelial cells, the mucus lining of the stomach will be destroyed in areas. The mucus acts as a protective layer (lining) in the stomach and neutralises the pH of the Stomach at the wall. Therefore the glands are

initates the stomach. If H. pylori enters these areas it can cause

exposed to lower pH (acidic) and

infection

4.	Digestion involves the breaking	down	of food	by	ас	combination	of	mechanical	and	chemical
	processes.									

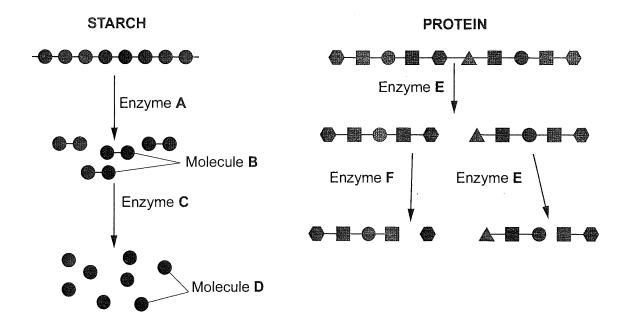
(a) Describe two ways in which food is broken down mechanically in the human alimentary canal.



1. Peristalsis along the althrentary canat cesophagus.

11. Chewing in the mouth.

(b) The diagrams show the digestion of a molecule of starch and a molecule of protein.



In the digestion of starch name: (i)

Enzymes A and C:



A Cor Carbohydrase c Amylase.

[1]

Molecules B and D: B Disacharides.

D Glucose

Name two places in the alimentary canal where digestion caused by enzyme A (ii) takes place. [1]

Smallintestine

Stomach.



E Endo peptidase F Endopeptidase

Pepsin and trypsin are enzymes involved in the digestion of proteins. Both are secreted as inactive precursors. Complete the table to give the names of the substances responsible for their activation.

\bigcirc

Enzyme	Name of precursor	Activated by
pepsin	pepsinogen	peptidase Thycoprotein.
trypsin	trypsinogen	trysing ase gly

Helicobacter pylori is a species of bacterium that lives in the stomach and digests urea into alkaline ammonia. Ammonia is toxic to epithelial cells lining the gastric pits (glands).

Suggest how infection with H.pylori can lead to the development of a peptic ulcer.



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Diges proce	stion esses	involves the breaking down of	food by a combination of mechanica	al and chemical
(a)	Des cana	cribe two ways in which food is al.	broken down mechanically in the hu	man alimentary [2]
	l	In the mouth, the	teeth chew the food	
	11	n the Stomach, it	chums the food an	rund.
(b)	The	diagrams show the digestion o	f a molecule of starch and a molecule	of protein.
	S	TARCH	PROTEIN	
	D -O-		Enzyme E	
		Enzyme A	Enzyme E	
•)-O	Molecule B		
		Enzyme C	Enzyme F Enzyme E	\
		•		
		Molecule D		
	(i)	In the digestion of starch nam	e:	
		Enzymes A and C: A MYLOSE	c amylase	[1]
		Molecules B and D: B 01500000000	o p glucose ([1] MONOSACCAC
	/** \		- 7	

Name **two** places in the alimentary canal where digestion caused by enzyme **A** takes place. [1] (ii)

duodenum

[2]

Pepsin and trypsin are enzymes involved in the digestion of proteins. Both are (ii) secreted as inactive precursors. Complete the table to give the names of the substances responsible for their activation.

Enzyme	Name of precursor	Activated by
pepsin	pepsinogen	hydrochlone aud.
trypsin	trypsinogen	

Helicobacter pylori is a species of bacterium that lives in the stomach and digests (iii) urea into alkaline ammonia. Ammonia is toxic to epithelial cells lining the gastric pits (glands).

Suggest how infection with H.pylori can lead to the development of a peptic ulcer.

Ξха			ı
0	n	ly	

4.	Dige:	stion esses	involves the breaking down of food by a combination of mechanical and chemics.	eal Exam
	(a)	cana	scribe two ways in which food is broken down mechanically in the human alimentate all. In the mouth, the tests the food.	ary [2]
		11\	in the Stomach, it chuns the food around.	
	(b)	The	e diagrams show the digestion of a molecule of starch and a molecule of protein.	
		S	STARCH PROTEIN	
			Enzyme E Enzyme E Enzyme E Enzyme E Molecule D Molecule D	
		(i)	In the digestion of starch name: Enzymes A and C: A MYLOSE Molecules B and D: B DISACCHARD D F GWCOSE (MONOSCO)	1]
		(ii)	Name two places in the alimentary canal where digestion caused by enzyme	

duodenum

(c) (i) In the digestion of protein name the types of enzyme shown at \mathbb{E} and \mathbb{F} .

2]

E CICIOPEPECAU X

F Exeppartano Exceptidase

(ii) Pepsin and trypsin are enzymes involved in the digestion of proteins. Both are secreted as inactive precursors. Complete the table to give the names of the substances responsible for their activation. [2]



Enzyme	Name of precursor	Activated by
pepsin	pepsinogen	hydrochlone aud.
trypsin	trypsinogen	

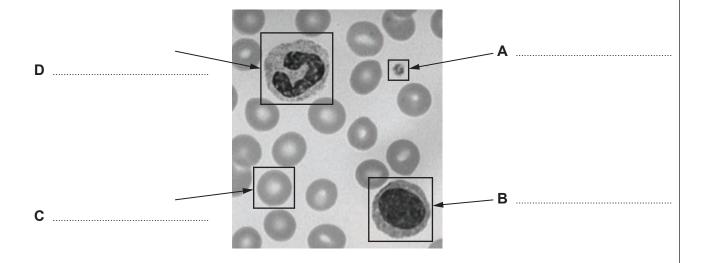
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Suggest how infection with H.pylori can lead to the development of a peptic ulcer.

The epithelial cells line the Stomach and product musus If who they are damaged by the ammone the mucus lining becomes thinner. This leads to the hyd ochloric acid irratesting the Stomach lining; which would usually be protected, if this continues then a peptic were would develop



6. The image shows a smear of human blood.



/al	I abol the components of blood identified on the image above	[0]
(a)	Label the components of blood identified on the image above.	IZI
1/		L—J

(b)	(i)	State the main function of the cell labelled C in the image.	[1]

(ii)	Describe and ex	xplain one	adaptation	shown	by ce	II C tha	t enables	it to	carry o	ou'
	this function.		-							[2]

(c) Identification of the antigens present on the cell membranes of these cells is used to place people into different blood groups.

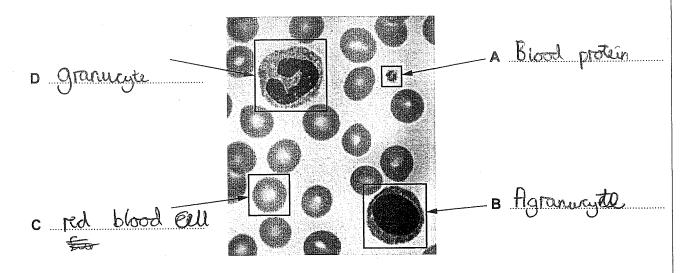
(i)	What is meant by the term antigen?	[2]

(ii)	Explain why it is important to identify a person's blood group correctly that person a blood transfusion.	before giving [2]

Examiner only

[2]

6. The image shows a smear of human blood.



- (a) Label the components of blood identified on the image above.
- (b) (i) State the main function of the cell labelled **C** in the image. [1]

(ii) Describe and explain one adaptation shown by cell C that enables it to carry out

It doesn't have a nucleus this enables there to be more room in the red blood Cell to corry

More otygen

this function.

- (c) Identification of the antigens present on the cell membranes of these cells is used to place people into different blood groups.
 - (i) What is meant by the term antigen? [2]

 A protein that when enters the blood triggers in

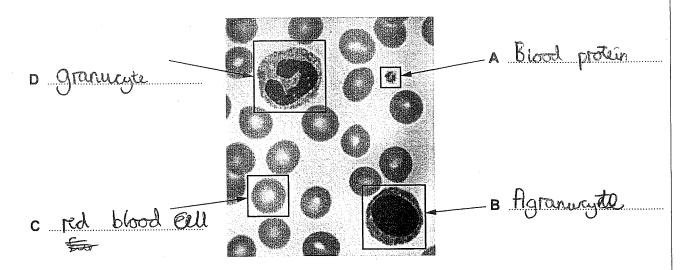
somation of antibodies

(ii) Explain why it is important to identify a person's blood group correctly before giving that person a blood transfusion. [2]

Is the wrong blood group is given agglutination (blood clots) som because the antigens on the red blood Cells and antibodies in the blood sit

together and theresone thog Cours blood Clots.

The image shows a smear of human blood. 6.



12

Label the components of blood identified on the image above. (a)

State the main function of the cell labelled C in the image. (b)

[1]

[2]

lo Carry oxygen to respiring tursues

Describe and explain one adaptation shown by cell C that enables it to carry out this function.



It doesn't have a nucleus this enables there to be more room in the red blood Cell to Carry More otyqen

Identification of the antigens present on the cell membranes of these cells is used to place people into different blood groups.

What is meant by the term antigen?

protein that when enters the blood triggers in

sormation of antibodies

Explain why it is important to identify a person's blood group correctly before giving that person a blood transfusion. [2]

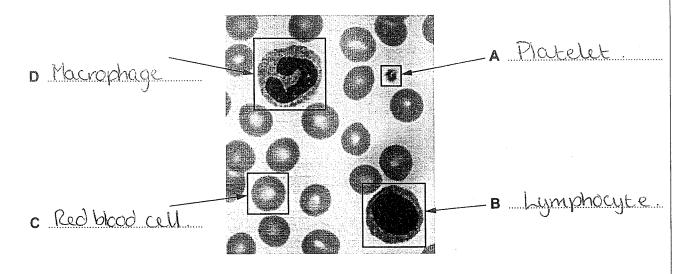
Is the wrong blood group is given agalutination (blood clots) som because the antigens on the

blood Cells and antibodies in the blood sit

together and theresore thou Cours blood Clots.



6. The image shows a smear of human blood.



- [2] (a) Label the components of blood identified on the image above. State the main function of the cell labelled C in the image. [1] (b) Transport of oxygen in the blood Describe and explain one adaptation shown by cell C that enables it to carry out this function. [2] Red blood cells do not contain tour nucleus which allows more space for harmoglobin, which increases the amount of oxygen it can carry. Identification of the antigens present on the cell membranes of these cells is used to place people into different blood groups.
 - (i) What is meant by the term antigen?

 A molecule found on the surface of a cell that identifies 4the Cell. Can trigger an immune response if non-self.

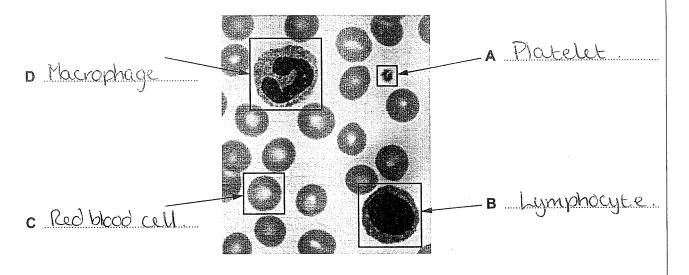
 (ii) Explain why it is important to identify a person's blood group correctly before giving that person a blood transfusion.

 [2]

 To avoid application of the blood cells.

To avoid agglutination of the blood cells, as each blood type has different agglutinagers (AB has none). If for example Blood group A is mixed with blood group b, the anti-b antibodies in A will cause agglutination. Also the rhesus has to be determined (positive and regative cannot mix. OWJECCBACLES. (1072-02)

The image shows a smear of human blood.



Label the components of blood identified on the image above. (a)

State the main function of the cell labelled C in the image. (b)

Transport of oxygen in the blood

Describe and explain one adaptation shown by cell C that enables it to carry out this function. [2]

blood cells do not contain tours nucleus which allows more space for

harmoglobin, which increases the amount of oxygen it can carry. Identification of the antigens present on the cell membranes of these cells is used to

place people into different blood groups.

What is meant by the term antigen?

[2]

found on the surface of a cell

that identifies the cell. Can trigger an

immune response if non-self.

Explain why it is important to identify a person's blood group correctly before giving that person a blood transfusion.



agglutination of the blood as each blood type has different applitingers (AB has none). If for example Blood group A is mixed with blood group b, the anti-b antibodies A will cause agglutination. Also the rhesus has to be determined (positive and negative cannot

mix. © WJEC CBAC Ltd

12 only The image shows a smear of human blood. A antibody o harmoglahin. B real blood coll c unite blood cer. Label the components of blood identified on the image above. [2] (a) (b) State the main function of the cell labelled **C** in the image. [1] pathogens askroy pathogen material Describe and explain one adaptation shown by cell C that enables it to carry out born a cub on the surface of the Skin the white blood cells will have phagoag unly unly clot the bloom Identification of the antigens present on the cell membranes of these cells is used to (c) place people into different blood groups. What is meant by the term antigen? [2] ag' which is used to present bya so other molecules can important to identify a person's blood group correctly before giving that person a blood transfusion. different antigens. If you were

only The image shows a smear of human blood. * antibady o harmoglobun. B real blood coll c unite blood cer. Label the components of blood identified on the image above. (a) [1] (b) State the main function of the cell labelled **C** in the image. Describe and explain one adaptation shown by cell C that enables it to carry out this function. been a cub on the surface of the Skin the white place cells will have phagod uny und clot the blac Identification of the antigens present on the cell membranes of these cells is used to (c) place people into different blood groups. What is meant by the term antigen? [2] which is used to present pa so other molecules can important to identify a person's blood group correctly before giving that person a blood transfusion. [2] event antigens. If you were