Centre No.					Pape	er Refer	ence			Surname	Initial(s)
Candidate No.			6	1	1	2	/	0	1	Signature	

Paper Reference(s)

6112/01 Edexcel GCE Biology (Human) Advanced Subsidiary

Unit Test 2H

Tuesday 10 January 2006 – Morning

Time: 1 hour

Materials required for examination	Items included with question papers
Ruler	Nil

Instructions	to	Candidate	•
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In the boxes above, write your centre number, candidate number, your surname, initial(s) and signature.

Check that you have the correct question paper.

Answer ALL EIGHT questions in the spaces provided in this booklet.

Show all the steps in any calculations and state the units. Calculators may be used.

Include diagrams in your answers where these are helpful.

Information for Candidates

The marks for individual questions and parts of questions are shown in round brackets: e.g. (2). The total mark for this paper is 60.

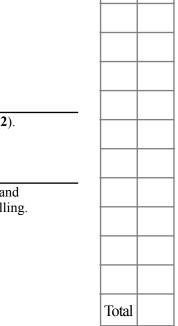
Advice to Candidates

You will be assessed on your ability to organise and present information, ideas, descriptions and arguments clearly and logically, taking account of your use of grammar, punctuation and spelling.

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Examiner's use only

Team Leader's use only

Question Number

2

3

6

7

Turn over



Leave	
hlank	

Answer ALL questions in the spaces provided.

1. The table below refers to the first and second divisions of meiosis.

If the statement is correct, place a tick (\checkmark) in the appropriate box and if the statement is incorrect, place a cross (x) in the appropriate box.

Statement	First division of meiosis	Second division of meiosis
Pairing of homologous chromosomes occurs.		
Each chromosome consists of a pair of chromatids during prophase.		
Crossing over occurs and chiasmata are formed.		
Independent assortment of chromosomes occurs.		

Q1

(Total 4 marks)

a)	Describe the effects that mastication has on food.
-,	When a person mosticates a piece of bread for a favy minutes, it is noticed that it
o)	When a person masticates a piece of bread for a few minutes, it is noticed that it begins to taste sweet. Give an explanation for this observation.
o)	When a person masticates a piece of bread for a few minutes, it is noticed that it
b)	When a person masticates a piece of bread for a few minutes, it is noticed that it
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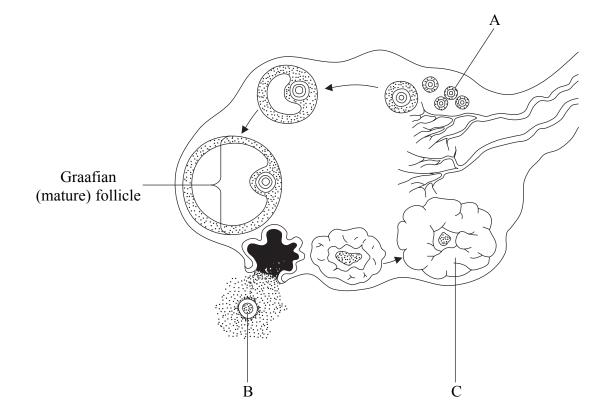
3. The table below shows the percentage saturation with oxygen of human haemoglobin and mouse haemoglobin, at a range of partial pressures of oxygen.

Partial pressure of oxygen	_	Percentage saturation of haemoglobin with oxygen		
/kPa	Human haemoglobin	Mouse haemoglobin		
1	8	3		
3	40	10		
5	71	25		
7	85	50		
9	92	75		
11	96	90		
13	98	97		
15	98	98		

al pressure of oxygen.			a) (1)	(a
	•••••	 		
(2)		 		

Suggest how this difference might be related to the difference in size of a mous and a human. (2 Haemoglobin combines with oxygen in the lungs. Describe the mechanism by which it is brought into the lungs (inspiration) in humans.		Small mammals have a higher rate of oxygen use per gram of body mass than larger mammals. From the table, it can be seen that at an oxygen partial pressure of 7 kPa, human haemoglobin is 85% saturated, but mouse haemoglobin is only 50% saturated.
Haemoglobin combines with oxygen in the lungs. Describe the mechanism by which it is brought into the lungs (inspiration) in humans.		Suggest how this difference might be related to the difference in size of a mouse and a human.
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(4	air :	is brought into the lungs (inspiration) in humans.

4. The diagram below shows the sequence of changes in a follicle in an ovary during one menstrual cycle.

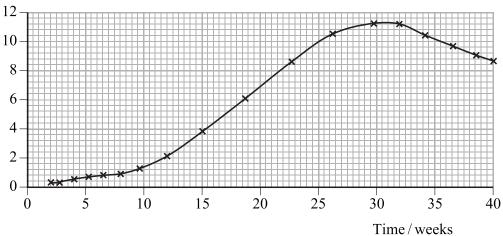


(a) Name the parts labelled A, B and C.

C

(b) The graph below shows changes in the concentration of the hormone progesterone during pregnancy.

Concentration 10 of progesterone in blood 8 / arbitrary units



(i) Describe the changes in the concentration of progesterone during pregnancy, as shown by the graph.

(2)

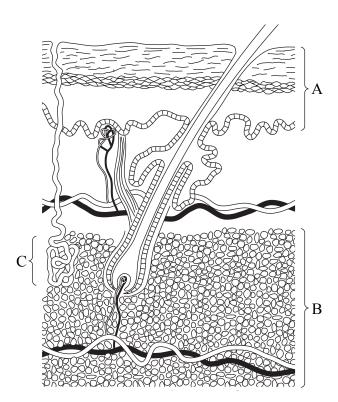
(ii) State **one** role of progesterone during pregnancy.

(1) Q4

(Total 6 marks)

(3)

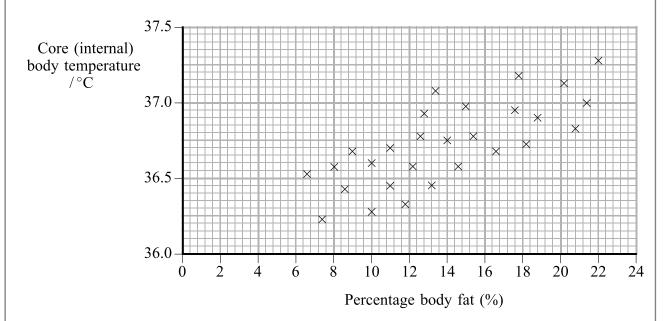
5. (a) The diagram below shows a section through human skin.



i)	Name the parts labelled A, B and C.
	A
	В
	C
	(3)
ii)	Explain the role of part C in the regulation of body temperature.

(b) In an investigation, a number of naked men sat in a room, maintained at an air temperature of 15 °C, for two hours. After this time their core (internal) body temperature was measured. Their percentage body fat was also measured.

The results of this investigation are shown in the graph below.



	(2)
1)	Describe the trend shown by these results.

(ii)

	•
suggest explanations for these results.	
	•
	•
	•
	•
	•
	•
	•

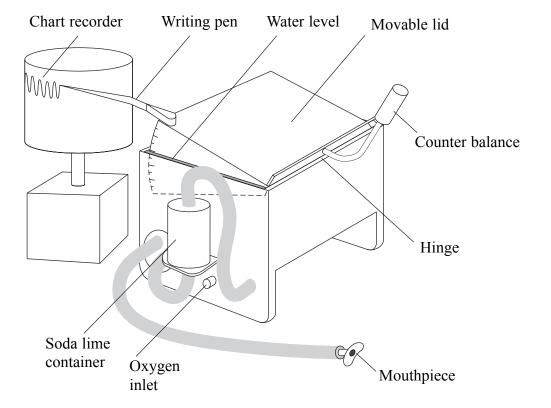
(Total 11 marks)

(3)



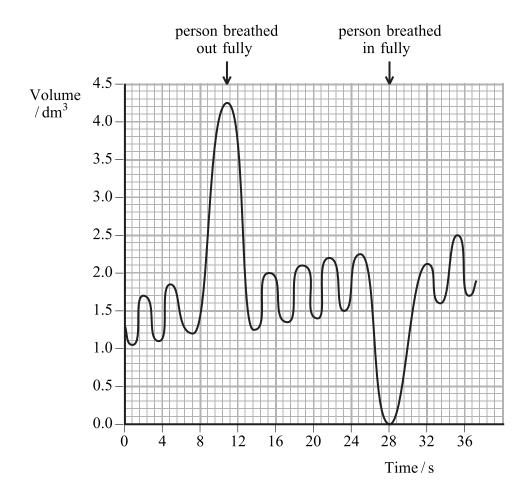
(3)

6. (a) The diagram below shows a spirometer, used to measure lung volumes in humans.



(i)	State the function of the soda lime.
	(1)
(ii)	Describe how you would use a spirometer to measure the tidal volume of a person.

(b) The graph below shows a spirometer record (spirogram) from a healthy person.



From the recording, find the vital capacity of the person.

Answer dm³

(1)

Q6

(Total 5 marks)

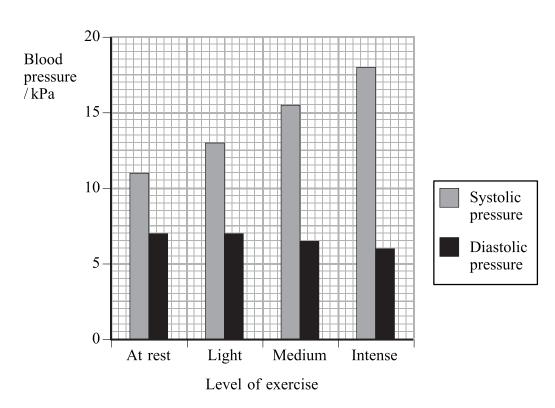
7. Exercise affects pulse rate and blood pressure.

(a) Explain what is meant by the term **pulse**.

.....

(2)

(b) The graph below shows typical blood pressures at different levels of exercise.



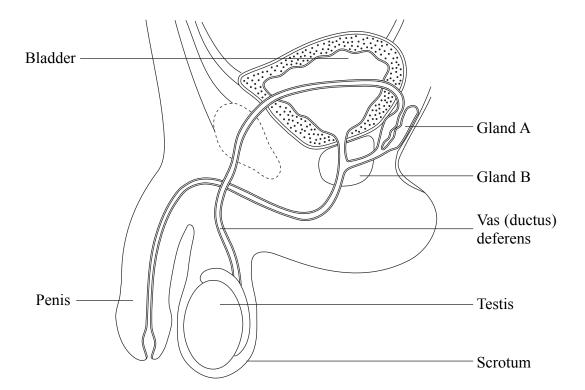
(i) Using the data in the graph, calculate the increase in systolic blood pressure from rest to a light level of exercise. Show your working.

Answer

(2)

	(2)
(iii) Using the information in the graph, compare the effects of	exercise on the
systolic and diastolic blood pressures.	
	(3)
	(Total 9 marks)

8. The diagram below shows the structure of the reproductive system of a human male, as seen in side view.



(a) Name the glands labelled A ar	nd B.
-----------------------------------	-------

A	 		
R			
D	 	•••••	 (2)
			(2)

(b)	The secretions	from	glands A	and B	both	contribute	to th	ne formation	n of	semen
----	---	----------------	------	----------	-------	------	------------	-------	--------------	------	-------

Give **two** roles of these secretions in semen.

- 1	
•	
•	

			(4	
(1) -		erm count is about 100 million spe		
below g		e e		
below g 1950 an	d 1990.	Percentage of men with	Percentage of men with]
	d 1990. Year	higher sperm counts (%)	Percentage of men with lower sperm counts (%)	
	d 1990. Year 1950	higher sperm counts (%) 50	Percentage of men with lower sperm counts (%)	
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