Centre No.					Pape	r Refer	ence			Surname	Initial(s)
Candidate No.			7	0	4	2	/	0	2	Signature	

7042/02

London Examinations GCE

Human Biology Ordinary Level

Paper 2

Thursday 20 May 2010 – Morning

Time: 2 hours

Materials required for examination

Items included with question papers

Instructions to Candidates

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

Answer FIVE questions, THREE from Section A and TWO from Section B.

Write your answers in the spaces provided in this question paper.

Indicate which question you are answering by marking the box (X). If you change your mind, put a line through the box (\bigotimes) and then indicate your new question with a cross (\bigotimes) .

Information for Candidates

The total mark for this paper is 100. All questions carry equal marks.

The marks for parts of questions are shown in round brackets: e.g. (2).

This paper has 9 questions.

There are 20 pages in this question paper. Any blank pages are indicated.

Advice to Candidates

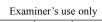
Write your answers neatly and in good English. In calculations, show all the steps in your working.

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1 3

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8 9

SECTION A

Answer any THREE questions in this section.

If you answer Question 1, put a cross in this box \square .

(a)	Describe the process of mitosis that occurs during nuclear division.	
		•••••
		•••••
		•••••
		(8)
(b)	(i) In which organs does meiosis occur in humans?	, ,
. /	· · · · · · · · · · · · · · · · · · ·	

	which the daughter cells produced by these methods differ.	
		•••••
		(4)
c) Soi	metimes cell division results in a mutation occurring.	
(i)	State two factors that may increase the risk of mutations occurring.	
		(2)
(ii)	Explain what a mutation is and why some mutations have harmful effects.	(2)
(ii)	Explain what a mutation is and why some mutations have harmful effects.	(2)
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(ii)	Explain what a mutation is and why some mutations have harmful effects.	(2)
(ii)	Explain what a mutation is and why some mutations have harmful effects.	(2)



If y	you answer	Question	2,	put a	cross	in	this	box	\times	
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2.	(a) (1)	body.	ıe
			 4)
		· ·	_

(ii) Use a large labelled diagram to show the nerve pathway of the withdrawal reflex.

(8)

in a loss of feeling and para	vertebral column in the neck region sometimes results alysis of the legs, even though there is no damage to
the leg muscles.	
	(6)
(ii) Suggest why such damage is	s frequently permanent
(ii) Suggest will such dumage i	s rrequently permanent.
	(2)
	(2) (Total 20 marks)

Leave
blank

(4)

(a)		
	(i)	With the help of a large labelled diagram, explain how the forearm is raised at the elbow joint.
		(8)
	(ii)	
	(ii)	Describe how the range of movement at the shoulder joint is greater than at the
	(ii)	Describe how the range of movement at the shoulder joint is greater than at the
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	(ii)	Describe how the range of movement at the shoulder joint is greater than at the

	which energy is released in a muscle cell.
	(4)
(ji)	During vigorous exercise, energy demand over a short time can lead to the
	formation of lactic acid. Describe the process that produces lactic acid and how the lactic acid is destroyed.
	(4)
	(4)
	(4)

(a) (i)	Describe the relationship between blood plasma, tissue fluid and lymph.
	(4
(11)	Bestine the functions of each of these fluids.
(-1)	Describe the functions of each of these fluids.
(**)	
(**)	
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(**)	
(**)	
(**)	

	(4)
(ii)	Suggest possible dangers of permanently raised blood pressure.
	(3)
(iii) Suggest what actions a doctor might advise a patient to take to reduce dangerously
(iii	
(iii) Suggest what actions a doctor might advise a patient to take to reduce dangerously
(iii) Suggest what actions a doctor might advise a patient to take to reduce dangerously
(iii) Suggest what actions a doctor might advise a patient to take to reduce dangerously
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(iii) Suggest what actions a doctor might advise a patient to take to reduce dangerously



	If you answer Question 5, put a cross in this box \square .
a) (i)	Describe the structure of the human urinary system.
(ii)	Explain how the kidney regulates the composition and concentration of the
(ii)	
(ii)	Explain how the kidney regulates the composition and concentration of the
(ii)	Explain how the kidney regulates the composition and concentration of the
(ii)	Explain how the kidney regulates the composition and concentration of the blood.
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(ii)	Explain how the kidney regulates the composition and concentration of the blood.
(ii)	

(i)	On a hot day with very little water to drink
(-)	y y
	(5)
(ii)	After eating a meal rich in protein
	(4)
	(Total 20 marks)
	TOTAL FOR SECTION A: 60 MARKS

11

Turn over

SECTION B

Answer any TWO questions in this section.

If you answer Question 6, put a cross in this box \square .

	Explain why, for the health of a community, it is important that sewage does not come into contact with the water supply.
	(3)
(0)	What are the likely effects if untreated sewage enters a lake or river?

purpose of each stage.
(10)

	If you answer Question 7, put a cross in this box \square .
(a)	Describe two ways in which fungi differ from bacteria in structure.
	(2)
(b)	Describe two ways in which fungi obtain their nutrients.
	(6)

		•
		•
		•
		•
		•
	(5))
(a) 1	Describe how fungi are of use to humans.	
(a) 1	Describe now rungi are of use to numans.	
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If you answer Question 8, put a cross in this box \square .

8. (a) (i) Use a large labelled diagram to show the structure of a virus.

(3)

(ii) Describe how the reproduction of a virus is brought about.

.....

(6)

16

	Describe three ways in which viruses differ from bacteria.
	(3)
(b) (i)	Poliomyelitis (polio) can be prevented by the use of a vaccine. Explain how a vaccine can help the body to develop immunity to a disease, such as polio.
	(5)
(ii)	Describe how a patient who shows symptoms of polio can be treated.
	(3)



Leave
blank

(a) (i)	Describe how humans depend on green plants for their supplies of oxygen and energy.
	(6)
(ii)	Suggest how chemicals used in the environment, such as weedkillers, can also accumulate in the body of a human.
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	environment.
	(5)
(ii)	The concentration of many pollutants, such as sulphur dioxide and carbon dioxide, appears to be increasing. Suggest reasons for this increase and some of the measures that could be taken to reduce it.
(ii)	The concentration of many pollutants, such as sulphur dioxide and carbon dioxide, appears to be increasing. Suggest reasons for this increase and some of
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