Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

BIOLOGY **0610/12**

Paper 1 Multiple Choice **February/March 2015**

45 minutes

Additional Materials: Multiple Choice Answer Sheet
Soft clean eraser
Soft pencil (type B or HB is recommended)

* 5 6 0 2 4 5 9 6 5 *

READ THESE INSTRUCTIONS FIRST

Write in soft pencil.
Do not use staples, paper clips, glue or correction fluid.
Write your name, Centre number and candidate number on the Answer Sheet in the spaces provided unless this has been done for you.
DO **NOT** WRITE IN ANY BARCODES.

There are **forty** questions on this paper. Answer **all** questions. For each question there are four possible answers **A**, **B**, **C** and **D**.
Choose the **one** you consider correct and record your choice in **soft pencil** on the separate Answer Sheet.

Read the instructions on the Answer Sheet very carefully.

Each correct answer will score one mark. A mark will not be deducted for a wrong answer.
Any rough working should be done in this booklet.
Electronic calculators may be used.

This syllabus is approved for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

This document consists of **13** printed pages and **3** blank pages.

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1 What is **not** a characteristic of all living organisms?

A excretion

B photosynthesis

C reproduction

D respiration

2 Which characteristics do bony fish have?

	backbone	scales	hair
A	✗	✗	✓
B	✗	✓	✗
C	✓	✓	✗
D	✓	✗	✓

3 The diagram shows an animal whose scientific name is *Falco peregrinus*.



To which species does it belong?

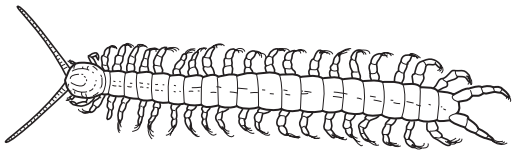
A bird

B *F. peregrinus*

C *Falco*

D vertebrate

4 Use the key to identify the arthropod shown.



1 body divided into segments ..... go to 2

body not divided into segments ..... go to 3

2 body has one pair of legs per segment ..... **A**

body has two pairs of legs per segment ..... **B**

3 one pair of antennae ..... **C**

two pairs of antennae ..... **D**

5 Plant cells are often green but animal cells are not usually green.

Which structure in plant cells makes them green?

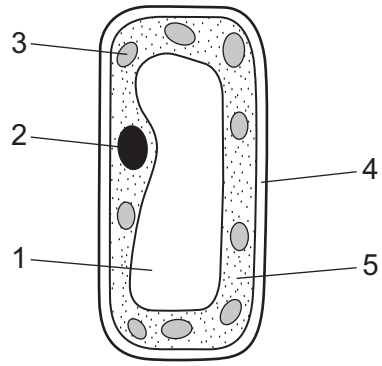
A cell wall

B chloroplast

C cytoplasm

D vacuole

6 The diagram shows the structure of a palisade cell.



Which features are also found in a liver cell?

A 1 and 2 **B** 2 and 5 **C** 3 and 4 **D** 4 and 5

7 What are the levels of organisation of the retina and of the eye?

	retina	eye
A	cell	organ
B	cell	organ system
C	tissue	organ
D	tissue	organ system

8 Which cell helps to move dust particles out of an organism?

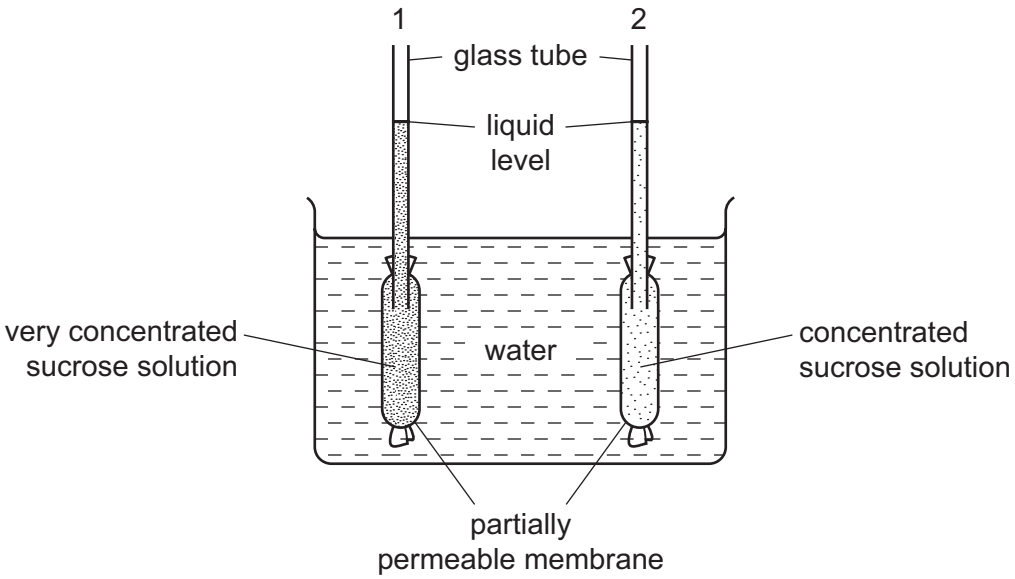
A ciliated cell

B guard cell

C muscle cell

D red blood cell

9 The diagram shows apparatus which can be used to demonstrate osmosis.



After one hour, what would happen to the liquid levels in the glass tubes?

	level in tube 1	level in tube 2
A	falls	falls
B	falls	rises
C	rises	falls
D	rises	rises

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10 By which process does oxygen pass out of a leaf?

A diffusion

B osmosis

C translocation

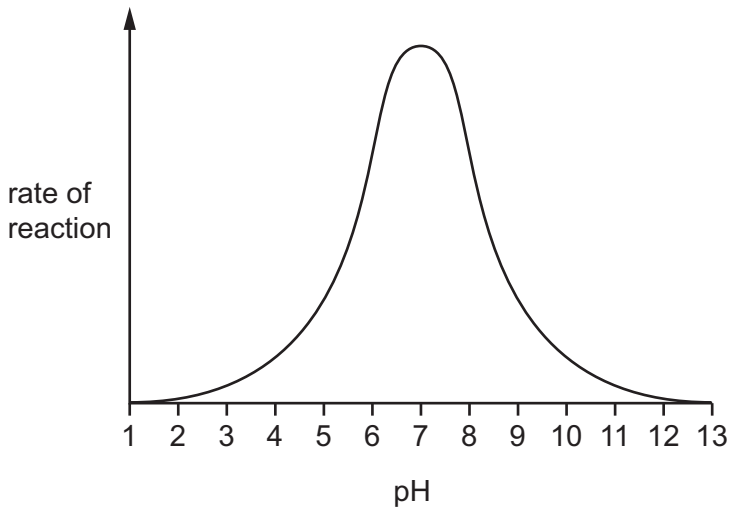
D transpiration

11 Lactase is a human enzyme that catalyses the breakdown of lactose in milk.

At which temperature does lactase work fastest?

A 0 °C **B** 18 °C **C** 37 °C **D** 100 °C

12 The graph shows the effect of pH on a particular enzyme-controlled reaction.



When is the enzyme **not** active?

A at pH 1 and pH 13

B at pH 3 and pH 11

C at pH 5 and pH 9

D at pH 7

13 Which nutrient produces a purple colour when mixed with biuret solution?

A fat

B protein

C reducing sugar

D starch

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14 What is carried by the xylem?

A chlorophyll

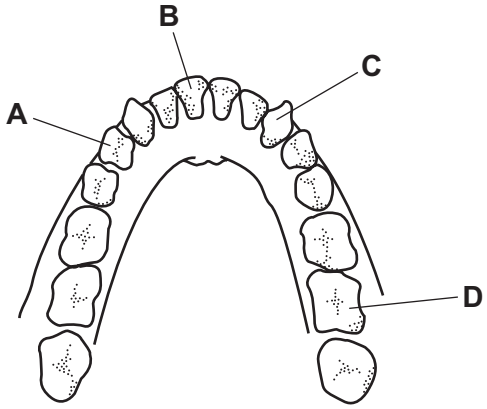
B mineral ions

C starch

D sugars

15 The diagram shows the teeth of the lower jaw of a human.

Which tooth is an incisor?



16 What is the correct sequence for blood being pumped from the heart to the lungs?

A left atrium → left ventricle → pulmonary artery

B left atrium → left ventricle → pulmonary vein

C right atrium → right ventricle → pulmonary artery

D right atrium → right ventricle → pulmonary vein

17 Which structures in plants and in humans normally carry amino acids?

	arteries	phloem	ureters
A	✓	✓	✗
B	✓	✗	✓
C	✗	✓	✗
D	✗	✗	✓

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18 Why is the circulatory system of mammals described as a double circulation?

A Blood flows firstly through arteries and then through veins.

B Blood flows through the heart twice on one complete circuit of the body.

C In the heart, blood flows firstly through atria and then through ventricles.

D The atria and the ventricles contract alternately.

19 Which word equation represents anaerobic respiration in human muscle?

A glucose → carbon dioxide + ethanol (alcohol)

B glucose → carbon dioxide + lactic acid

C glucose → ethanol (alcohol)

D glucose → lactic acid

20 A woman has been smoking heavily for many years.

Which statement could **not** be correct?

A Her arteries are blocked with tar.

B She is addicted to nicotine.

C The cilia in the trachea have been destroyed.

D The surface area of the lungs is reduced.

21 What makes alveoli suitable as a gas exchange surface?

	large total surface area	well-supplied with blood vessels
A	✓	✓
B	✓	✗
C	✗	✓
D	✗	✗

22 How is urea removed from the body?

A as insoluble waste

B by being destroyed in the liver

C in expired air

D in solution

23 How does blood change as it passes through a kidney?

A It gains glucose.

B It gains salts.

C It loses protein.

D It loses urea.

24 What would be the effects of vasodilation and sweating on the body temperature and on the amount of moisture on the surface of the skin?

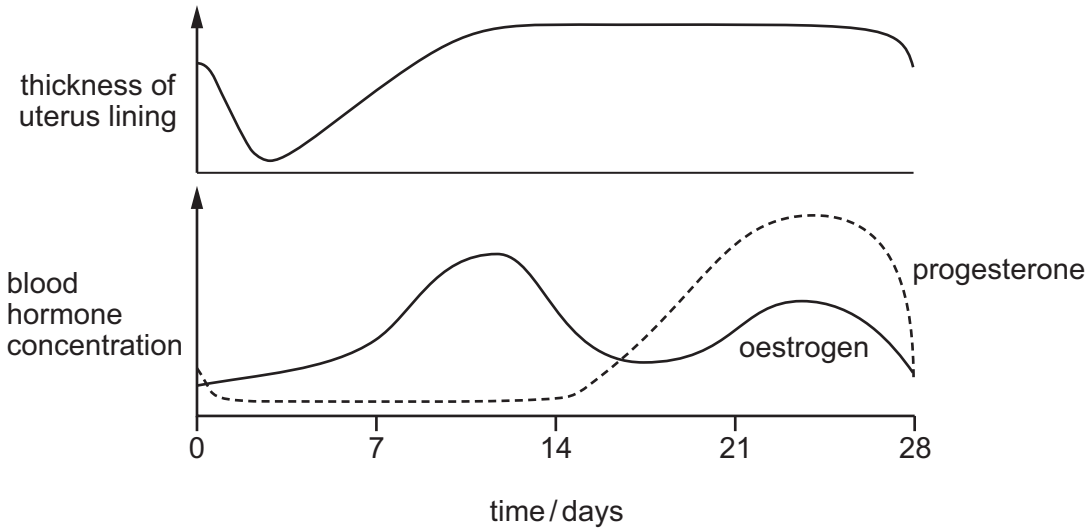
	body temperature	moisture on skin surface
A	decreased	decreased
B	decreased	increased
C	increased	decreased
D	increased	increased

25 What would be the pupil size and lens shape of a person reading a mobile phone text message in a brightly-lit room?

	pupil size	lens shape
A	large	fat
B	large	thin
C	small	fat
D	small	thin

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26 The graphs show changes that occur in a woman during the menstrual cycle.



Which statement is supported by evidence in the graphs?

A A large increase in progesterone concentration always results in thickening of the uterus lining.

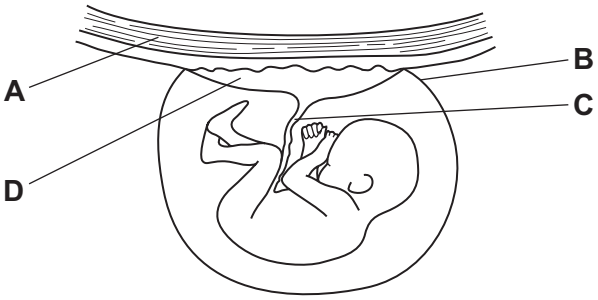
B At ovulation, the uterus lining is at its thickest.

C Each time the oestrogen concentration rises, the uterus lining becomes thicker.

D Within 5 days of ovulation, the uterus lining gets thinner.

27 The diagram shows a developing fetus attached to the uterus of a pregnant woman.

Which part is normally cut immediately after birth?



28 Which environmental condition is **not** essential for the germination of all seeds?

A availability of light

B availability of oxygen

C availability of water

D suitable temperature

29 What always increases during the development of an organism?

A cell number

B complexity

C dry mass

D volume

30 What is an example of a characteristic that shows discontinuous variation in humans?

A blood group

B body mass

C height

D width of hand

31 What are the sex chromosomes for human females and males?

	female	male
A	XX	XY
B	XX	YY
C	XY	XX
D	YY	XY

32 In fruit flies, the allele for grey body, G, is dominant over the allele for black body, g.

The result of a mating between two flies is shown.

(parents) grey-bodied fly × black-bodied fly

↓

(offspring) 33 grey-bodied flies + 38 black-bodied flies

What were the genotypes of the parents?

A Gg × gg **B** Gg × Gg **C** GG × gg **D** GG × Gg

33 Which way does energy flow directly in a food chain?

A carnivore to herbivore

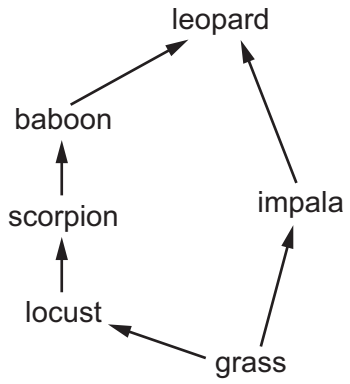
B consumer to producer

C decomposer to producer

D producer to herbivore

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34 The diagram shows a food web.



At which trophic levels is the leopard feeding?

A first and second

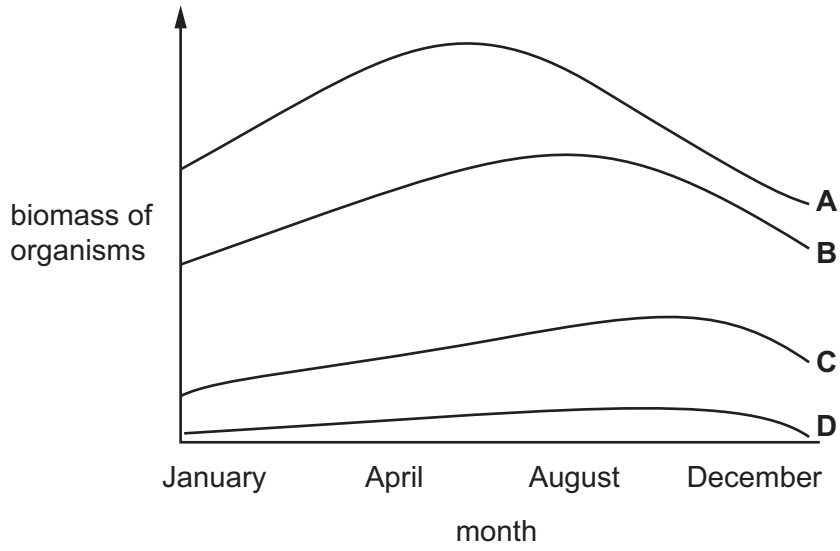
B second and third

C second and fourth

D third and fifth

35 The graph shows changes in biomass of different organisms in an ecosystem over a 12 month period. Each line represents a different trophic level.

Which line represents the herbivores?

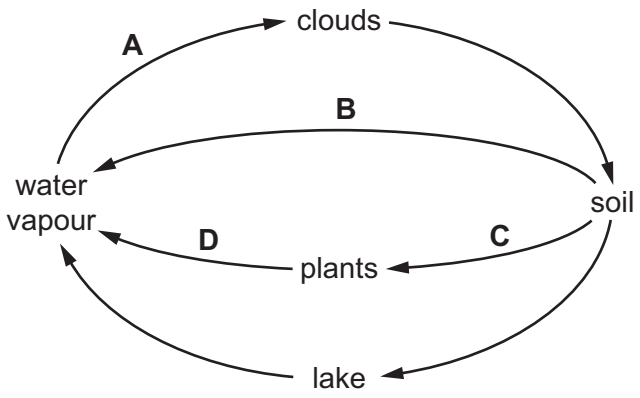


36 Which processes result in organisms gaining carbon compounds, and in the addition of carbon dioxide to the atmosphere?

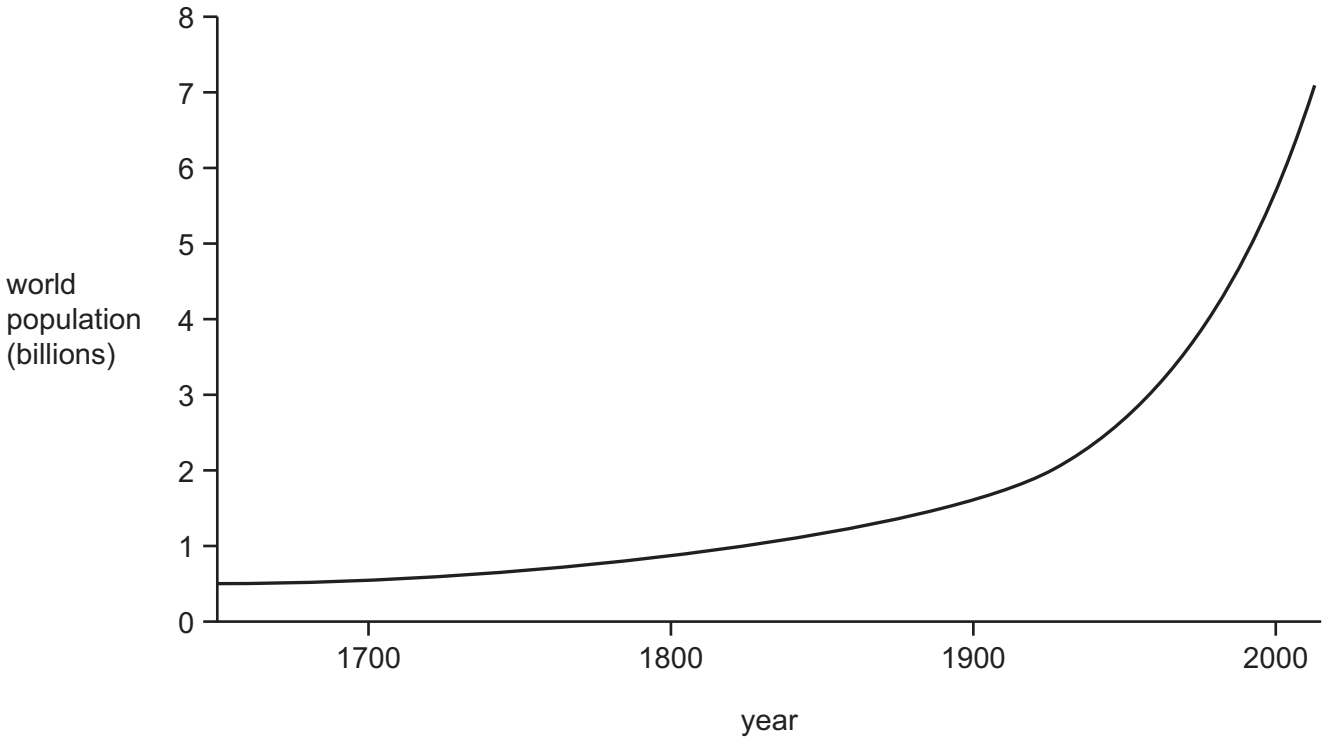
	organisms gaining carbon compounds	addition of carbon dioxide to the atmosphere
A	photosynthesis and combustion	respiration by animals
B	photosynthesis and combustion	respiration by plants
C	photosynthesis and feeding	dead organisms changing to fossil fuels
D	photosynthesis and feeding	respiration by plants

37 The diagram shows part of the water cycle.

Where is osmosis occurring?



38 The graph shows how the population of the world increased from 1650 until the present day.



Which phases of the usual sigmoid growth curve are missing in this graph?

A death and lag

B exponential (log) and stationary

C lag and exponential (log)

D stationary and death

39 Which process may result in eutrophication in a lake?

A bleach entering from a factory

B fertilisers entering from farmland

C hot water entering from a power station

D pesticides entering from farmland

40 Which two gases are the biggest contributors to the greenhouse effect?

A carbon dioxide and methane

B carbon monoxide and carbon dioxide

C methane and sulfur dioxide

D sulfur dioxide and carbon monoxide

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