



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

TWENTY FIRST CENTURY SCIENCE (CORE)

0608/01

Paper 1 Multiple Choice

May/June 2010

1 hour

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



READ THESE INSTRUCTIONS FIRST

Write in soft pencil.

Do not use staples, paper clips, highlighters, 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.

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.

You may use a calculator.

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



1 Why are drugs often tested on animals?

- A to find out if they work and if they are safe
- B to prevent the animals passing on diseases to humans
- C to protect endangered animals from disease
- D to work out how much money to charge for them

2 Cystic fibrosis is an inherited condition.

In which part of the cell is the allele for cystic fibrosis found?

- A cell membrane
- B cell wall
- C cytoplasm
- D nucleus

3 Which organ is badly affected by cystic fibrosis?

- A brain
- B liver
- C lung
- D muscle

4 What would make it more likely for an organism to become extinct?

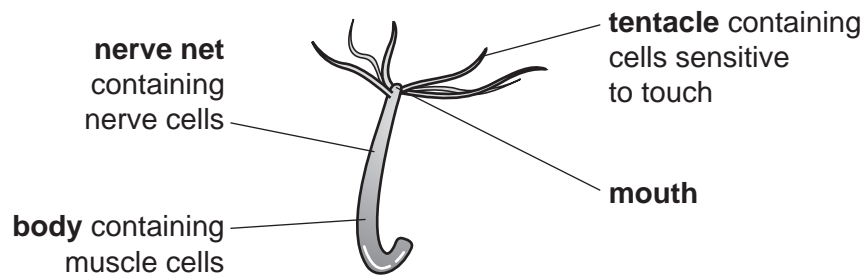
- A if a predator of the organism is introduced
- B if more food becomes available for the organism
- C if the environment stays the same
- D if the organism is made a protected species

5 When did life on Earth first appear?

- A 3500 years ago
- B 350 thousand years ago
- C 3500 million years ago
- D 35 billion years ago

The following information should be used to answer questions 6 and 7

Hydra is a small animal that is about 0.5 cm long. The diagram shows four main parts of a hydra.



6 Which part contains receptors?

- A body
- B mouth
- C nerve net
- D tentacle

7 Which best describes hydra?

- A microorganism
- B multicellular
- C single-celled
- D vertebrate

The following information should be used to answer questions 8, 9 and 10.

The table shows the properties of four synthetic materials.

material	strength	flexibility	hardness	melting point in °C
1	strong	not flexible	very hard	130
2	weak	very flexible	soft	75
3	strong	not flexible	scratches easily	95
4	weak	not flexible	hard but breaks easily	80

8 Material 1 is used to make the casing for an electric kettle.

Which property makes it **most** suitable for this use?

- A strength
- B flexibility
- C hardness
- D melting point

9 Material 2 is used to make food bags.

Which property makes it most suitable for this use?

- A strength
- B flexibility
- C hardness
- D melting point

10 All four materials are transparent.

Which material would be most suitable for the windshield of a motorbike?

- A material 1
- B material 2
- C material 3
- D material 4

11 Air quality would improve if more people travelled by bus instead of car.

What is the best explanation for this?

- A Buses give out polluting gases.
- B Buses have bigger engines than cars.
- C Each car journey uses less fuel than each bus journey.
- D The amount of pollution per passenger is less for a bus.

12 Look at the comments made by these two farmers.



Why do some organic crops contain harmful chemicals?

- A Crops take in toxic gases from the air.
- B Harmful chemicals form in crops if they are not watered often enough.
- C Nitrogen compounds in the soil produce harmful chemicals in the crops.
- D When crops are stored, harmful moulds can grow on them.

13 Why are preservatives used in food?

- A They improve the flavour of food.
- B They make food look more attractive.
- C They prevent the growth of microbes in food.
- D They reduce the energy content of the food.

- 14 Scientific advisory committees carry out risk assessments on food products.

Why do they carry out risk assessments?

- A to check that there are safe levels of chemicals in the food
- B to find out if the food contains any artificial colouring
- C to find out if the food is organically grown or not
- D to make sure the food tastes good

- 15 What is the correct order of age for the Earth, the Universe and the Sun?

	oldest	→	youngest
A	Earth	Universe	Sun
B	Sun	Earth	Universe
C	Universe	Earth	Sun
D	Universe	Sun	Earth

- 16 How do scientists know so much about distant stars?

- A They have sent space probes to these stars.
- B They have studied the radiation from these stars.
- C They have talked to people who live on these stars.
- D They have visited these stars.

- 17 How does the Sun produce energy?

- A the burning of coal
- B the burning of hydrogen
- C the fusion of coal
- D the fusion of hydrogen

- 18 Sunlight is needed by plants to provide energy for photosynthesis.

Which gas is added to the atmosphere by photosynthesis?

- A carbon dioxide
- B methane
- C oxygen
- D ozone

19



Which statement best describes the girl's decision to fly on holiday?

- A She believes the benefit outweighs the risk.
- B She believes the risk outweighs the benefit.
- C She is aware of a risk and decides not to go ahead.
- D She is unaware of any risk, so she goes ahead.

20 What is **not** caused by global warming?

- A climate change
- B ice caps melting
- C rising sea levels
- D skin cancer

21 Which energy source is renewable?

- A coal
- B oil
- C uranium
- D wood

22 Which type of microorganism causes influenza?

- A a bacterium
- B a fungus
- C an antibiotic
- D a virus

23 The body's immune system tries to attack the microorganism that causes influenza.

Which method may the body use to do this?

- A** Red blood cells make antibodies.
- B** Red blood cells make antibiotics.
- C** White blood cells make antibodies.
- D** White blood cells make antibiotics.

The following information should be used to answer questions **24** and **25**.

A combined vaccination is one injection containing several vaccines. Many people disagree about combined vaccinations.

Four people were asked their opinions about combined vaccinations.



Penny

Combined vaccinations put children's immune systems under too much stress at one time.



Shireen

When a combined vaccination is split into three separate injections, cases of the three diseases go up.



Don

Children only have to go once for a combined vaccination. Children may stop going for vaccinations if they have to go many times.



Carol

Some children suffer from brain damage after having a combined vaccination.

24 Which people think that combined vaccinations are a good idea?

- A** Carol and Penny
- B** Don and Penny
- C** Don and Shireen
- D** Penny and Shireen

25 A doctor said,

'Children's immune systems can easily cope with the microorganisms used in vaccinations.
A child's immune system is used to coping with many microorganisms at one time.'

This doctor's view could make one person change their ideas about combined vaccinations.

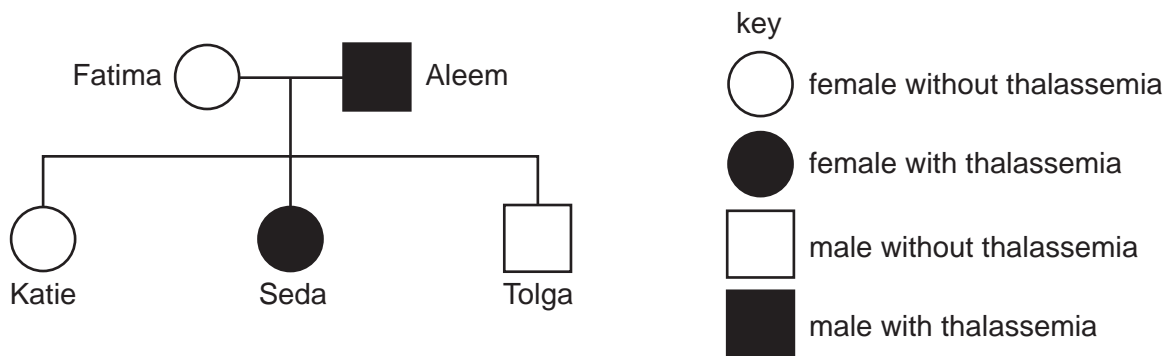
Which person is this?

- A Carol
- B Don
- C Penny
- D Shireen

The following information should be used to answer questions 26 and 27.

Thalassemia is a genetic condition, caused by a recessive allele.

The diagram shows a family tree.



26 Katie is a carrier for thalassemia.

Which other people are also carriers for thalassemia?

- A Aleem and Seda
- B Fatima and Tolga
- C Fatima only
- D Tolga only

27 Katie wants to marry a man who has thalassemia.

What would be the probability of their first baby having thalassemia?

- A 0
- B $\frac{1}{3}$
- C $\frac{1}{2}$
- D $\frac{2}{3}$

The following information should be used to answer questions 28 and 29.

A scientist takes measurements of sulfur dioxide in the air near a power station.

28 Which process causes sulfur dioxide to form?

- A incomplete combustion of fuel
- B sulfur in the air reacts with oxygen at high temperatures
- C sulfur in the fuel burns
- D sunlight causes reactions in the smoke that leaves the chimney

29 The scientist takes five readings. The table shows the results collected.

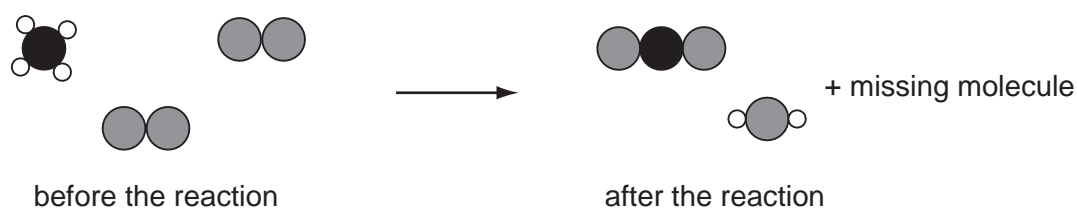
reading number	1	2	3	4	5
sulfur dioxide concentration in $\mu\text{g}/\text{m}^3$	322	318	307	311	312

Why did the scientist take five readings?

- A to find a correlation
- B to find out if the readings are reliable
- C to practise using the measuring device
- D to use one of the readings as a control

30 Methane gas is used as a fuel.

When methane burns, it reacts with oxygen to make carbon dioxide and water.



What is the missing molecule?

- A
- B
- C
- D

- 31 Electric cars run on a rechargeable battery. The battery is charged by plugging the car into mains electricity overnight.

Why will using electric cars improve air quality in towns?

- A A catalytic convertor will remove harmful gases from the car exhaust.
- B Generating electricity does not produce any air pollution in towns.
- C Less fossil fuel will be burned in power stations.
- D Less fossil fuel will be burned in towns.

- 32 Poly(propene) is used to make drainage pipes.

Which statement shows an advantage of using poly(propene) to make drainage pipes?

- A Making poly(propene) drainage pipes uses a large amount of energy.
- B Poly(propene) is made from crude oil.
- C Waste poly(propene) can be broken down and used to make new polymers.
- D Waste poly(propene) does not rot if it is buried in a landfill site.

- 33 Some of the materials in the list below are made from living things and some of them are synthetic.

- 1 cotton
- 2 glass
- 3 nylon
- 4 silk
- 5 steel
- 6 wool

Which materials are made from living things?

- A 1, 4 and 6 B 1, 5 and 6 C 2, 4 and 6 D 3, 4 and 6

34 All amino acids contain carbon and hydrogen atoms.

Which other elements do all amino acids contain?

- A calcium and nitrogen
- B nitrogen and oxygen
- C oxygen and calcium
- D potassium and phosphorus

35 Which statement about microwaves is **not** correct?

- A Microwaves can cause water molecules to vibrate.
- B Microwaves produce ions in living cells.
- C The energy in microwaves is carried as photons.
- D The intensity of microwaves decreases as the distance from the source increases.

36 Ultraviolet light can cause skin cancer.

What is the best explanation of this?

- A Ultraviolet light can heat up skin cells.
- B Ultraviolet light causes sunburn.
- C Ultraviolet light is an ionising radiation.
- D Ultraviolet light is next to X-rays in the electromagnetic spectrum.

37 A block diagram for a nuclear power station is shown.



What are the correct labels for X, Y and Z?

	X	Y	Z
A	generator	reactor	turbine
B	reactor	generator	turbine
C	reactor	turbine	generator
D	turbine	generator	reactor

The following information should be used to answer questions **38**, **39** and **40**.

Sue and Tim are discussing a new medical treatment which uses radioactive sources.

I think it is a good idea. The new treatment will be very safe. The government has said only trained doctors will be able to use it. It will help improve many people's lives and think how happy their families will be.



Sue

The treatment is very expensive and not everybody who needs it will be able to have it. It uses radiation which kills living cells and it cannot be completely safe. I don't think we should use it.



Tim

- 38** Who talks about risks?
- A Sue
 - B Tim
 - C both Sue and Tim
 - D neither Sue nor Tim
- 39** Who talks about official regulations?
- A Sue
 - B Tim
 - C both Sue and Tim
 - D neither Sue nor Tim
- 40** Who talks about the economic cost?
- A Sue
 - B Tim
 - C both Sue and Tim
 - D neither Sue nor Tim

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