

Surname	Initial(s)
Signature	

Paper Reference(s)

XXXX

Edexcel GCSE Science

Biology B1 a

Specimen multiple-choice paper

Foundation and Higher Tiers

Date:

Time: 20 minutes

Materials required for examination **Items included with question papers**

Multiple Choice Answer Sheet

None

Ruler graduated in millimetres,
HB pencil, eraser and calculator

Instructions to Candidates

FOUNDATION TIER CANDIDATES ANSWER QUESTIONS 1- 24

HIGHER TIER CANDIDATES START AT QUESTION 17 . ANSWER QUESTIONS 17-40

Use a HB pencil. Do not open this booklet until you are told to do so.

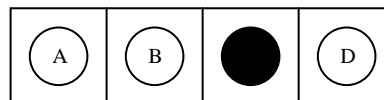
Before the test begins:

Check that the answer sheet is for the correct test and that it contains your candidate details.

How to answer the test:

For each question, choose the right answer, A, B, C or D and mark in HB pencil on the answer sheet.

For example, the answer C would be marked as shown.



Mark only **one** answer for each question. If you change your mind about an answer, rub out the first mark, then mark your new answer.

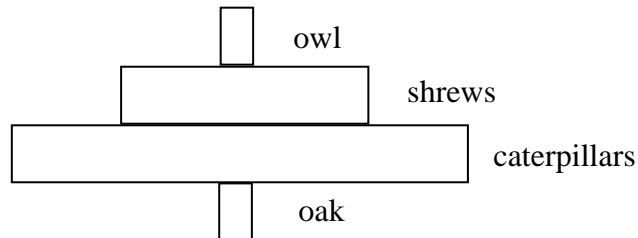
Do any necessary calculations and rough work in this booklet. You may use a calculator if you wish.

You must not take this booklet or the answer sheet out of the examination room.

**FOUNDATION TIER CANDIDATES ANSWER QUESTIONS 1 -24
HIGHER TIER CANDIDATES START AT QUESTION 17.**

Food chains

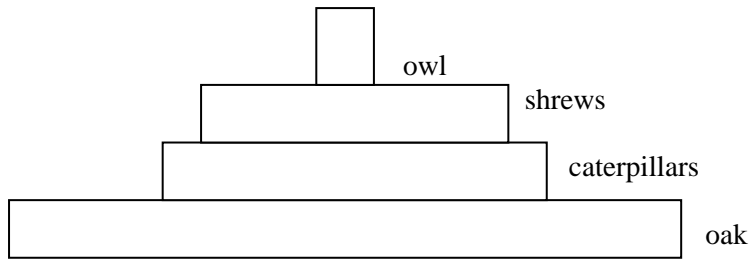
1. Harpreet is studying animals and plants in a wood and draws a pyramid.



Harpreet's pyramid shows the

- A weight of the living organisms
 - B height of living organisms
 - C number of living organisms
 - D size of living organisms
2. The owl is a
- A producer
 - B primary consumer
 - C carnivore
 - D herbivore
3. The predators are the
- A owl and shrews
 - B shrews and caterpillars
 - C owl and caterpillars
 - D owl and oak

4. Harpreet draws another pyramid.



This is a pyramid of

- A number
 - B biomass
 - C size
 - D prey
5. The shape of this pyramid is caused by the loss of
- A energy
 - B food
 - C oxygen
 - D water

Human Genome Project

Lucy wanted to know why she has some of her father's features and some of her mother's.

6. Lucy knows that inside every cell is a nucleus.
- The nucleus contains long thread-like structures.
- These structures are called
- A genes
 - B chromosomes
 - C clones
 - D characteristics
7. Lucy found out that the long thread-like structures in her cells came
- A only from her mother
 - B from her mother and her father
 - C only from her father
 - D from her brother and sister

8. The long thread-like structures contain genes.

A gene is made of

- A** cells
- B** cytoplasm
- C** proteins
- D** DNA

9. Different forms of the same gene are called

- A** alleles
- B** clones
- C** transplants
- D** varieties

10. Lucy has been finding out about the Human Genome Project.

The human genome is the name given to all the

- A** genes in our body
- B** cells in our body
- C** eggs in our body
- D** sperms in our body

11. The Human Genome Project will help doctors to treat cancer.

Why is this?

- A** They can identify who is at risk
- B** They can identify our parents
- C** They can create a new drug
- D** They can identify cancers

12. Which of these is an ethical issue to do with the Human Genome Project?

Information about your genes may be made available to

- A** your doctor with your permission
- B** yourself
- C** your parents with your permission
- D** your insurance company

Imran's fossil hunt

13. Imran discovered that fossils are found in layers of rock.

Imran has been fossil hunting on a beach.

He found that the

- A** oldest fossils are in layers of rock near the surface
- B** oldest fossils are in layers of rock far from the surface
- C** youngest fossils are in layers of rock far from the surface
- D** oldest and youngest fossils are found in the same layer of rock

14. Fossils are made from

- A** dead organisms when they decay
- B** the soft parts of dead organisms when they are buried
- C** living organisms when they decay
- D** the hard parts of dead organisms when they are buried

15. Most of the species of organism that formed fossils have died out.

The word that describes this is

- A** variation
- B** competition
- C** extinction
- D** evolution

16. Imran looked at some fossil jawbones of ancestors of the cat.

The jaw labelled D is from the oldest ancestor.



A



B



C



D

Which is the correct order of fossil jawbones from the oldest to the youngest?

- A DCAB
- B DBAC
- C DACB
- D DCBA

**FOUNDATION TIER CANDIDATES ANSWER QUESTIONS 17-24
HIGHER TIER CANDIDATES START HERE.**

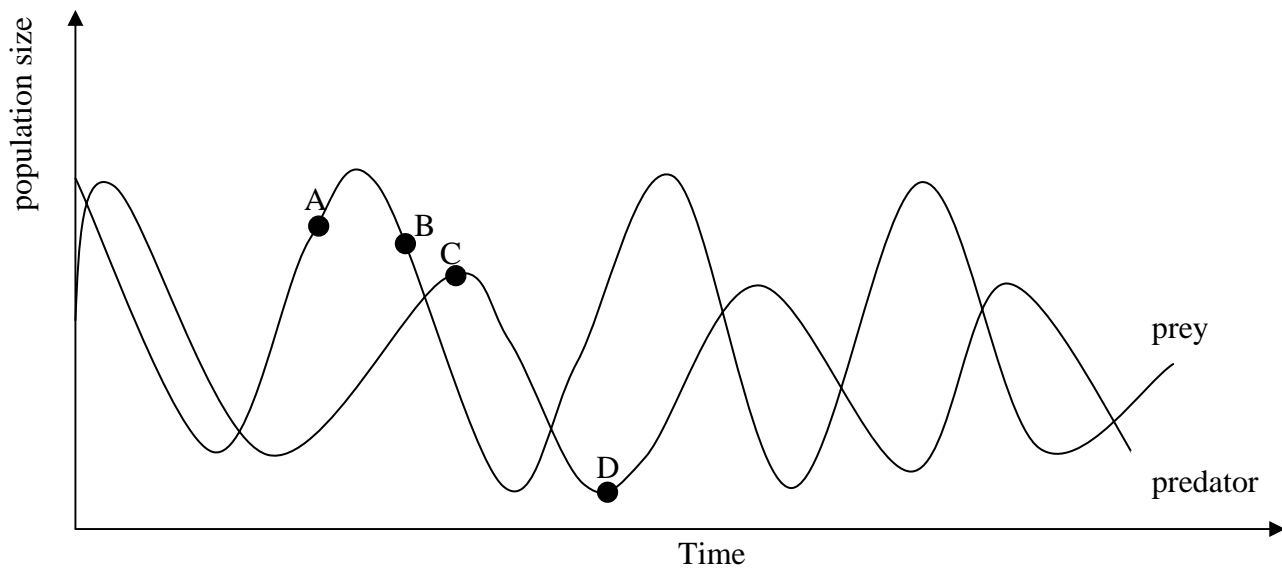
Rabbits and foxes

Rabbits and foxes have a predator-prey relationship.

17. In a predator-prey relationship

- A** there are always more predators than prey
- B** the numbers of predators and prey are always equal
- C** predator numbers will increase without prey
- D** prey numbers will increase without predators

The graph shows changes in the population of rabbits and foxes, over several years.



Using points A, B, C or D on the graph above, answer questions 18, 19 and 20.

- 18. At which point are there fewest foxes?
- 19. At which point do rabbits have plenty of food and have increased most in number?
- 20. At which point is there plenty of food for foxes so their numbers have increased?

21. During one year the rabbit population increased from 50 to 250. The percentage increase in the rabbit population was
- A 100 %
 - B 250 %
 - C 400 %
 - D 500 %

New spider plants

22. A spider plant like the one below had its “baby” spider plants cut off.



The pieces were put into soil and then grew into new spider plants.

Which row of the table shows this type of reproduction used to produce the new spider plants?

	sexual	asexual
A	no	no
B	no	yes
C	yes	no
D	yes	yes

23. The new spider plants are
- A genetically different from each other and genetically different from the parent
 - B genetically different from each other but genetically the same as the parent
 - C genetically the same as each other but genetically different from the parent
 - D genetically the same as each other and genetically the same as the parent

24. The process that describes this reproduction of the new spider plants is

- A breeding
- B cloning
- C fertilising
- D transplanting

**FOUNDATION TIER CANDIDATES STOP HERE
HIGHER TIER CANDIDATES CONTINUE TO THE END.**

TOTAL FOR FOUNDATION-TIER PAPER: 24 MARKS

QUESTIONS 25- 40 MUST BE ANSWERED BY HIGHER TIER CANDIDATES ONLY.

Genetically modified (GM) soya beans

25. A variety of soya bean has been genetically modified to be resistant to herbicides.

Soya bean plants resistant to herbicides

- A will grow slower
- B can be sprayed with weed killer
- C produce a lower yield of crop
- D are not eaten by pests

26. What was inserted into the soya bean plant to make it genetically modified?

- A DNA from a resistant plant
- B Herbicide from a resistant plant
- C A nucleus from a resistant plant
- D A chromosome from a resistant plant

Use the statements below about GM crops to answer questions 27- 28.

- 1 pollen from herbicide resistant crops will never transfer to other plants
- 2 GM crops may last longer and are less likely to spoil
- 3 GM crops can be resistant to insects so there is less need to use pesticides
- 4 GM crops may lead to a reduction in biodiversity

27. Which statements are true?

- A 1 only
- B 1 and 2 only
- C 1, 2 and 3 only
- D 2, 3 and 4 only

28. Which statements describe possible disadvantages of GM crops?

- A 1 only
- B 2 and 3
- C 3 and 4
- D 4 only

Designer babies

29. 'Designer babies' is a term used by journalists. The term describes methods used to allow parents to control what their children will be like.

One method used to produce designer babies involves screening

- A fertilised embryos
- B adult body cells
- C children after they are born
- D parents

30. Designer babies are less likely to be produced if

- A defective genes are removed
- B useful genes are added
- C defective genes are added
- D useful and defective genes are removed

31. Parents can use the method of screening to select the sex of their child.
This is a good idea for these parents because

- A there will be less males in the world
- B many diseases can only be passed on by males
- C it increases the likelihood of abortion
- D more children will be born

32. There is some public opposition about producing designer babies.
Which one of these statements is not a reason for public opposition?

- A It increases the financial and emotional strain on parents
- B It decreases the financial and emotional strain on parents
- C The babies are produced to make someone else happy
- D Genetic diseases are natural events

Eye colour

Eye colour can be affected by dominant and recessive alleles. The allele for brown eye, B, is dominant to the allele, b, for blue eyes.

The diagram shows how eye colour can be inherited.

		father	
		B	b
mother	B	BB	Bb
	b	Bb	bb

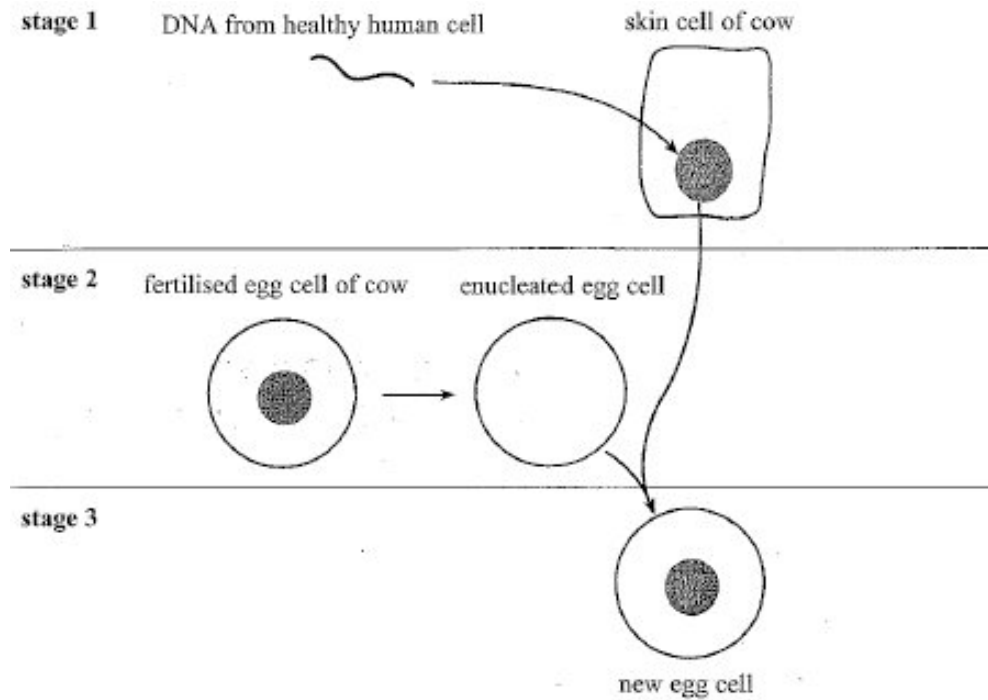
Use this information to answer questions 33, 34 and 35.

33. In this example the
- A mother and the father are homozygous
 - B mother and the father are heterozygous
 - C mother is homozygous and the father is heterozygous
 - D mother is heterozygous and the father is homozygous
34. In this example the ratio of eye colour in the offspring is
- A 1:1
 - B 3:1
 - C 4:1
 - D 5:1
35. Which is true?
- A brown eyed parents always produce brown eyed children
 - B brown eyed parents sometimes produce blue eyed children
 - C blue eyed parents sometimes produce brown eyed children
 - D blue eyed parents always produce brown eyed children
36. Dominant and recessive alleles are
- A different forms of the same allele
 - B the same forms of the same allele
 - C different forms of the same gene
 - D the same forms of the same gene

'Designer milk'

Cows can be used to make 'designer milk' containing human antibodies.

The diagram shows the first three stages of the process



37. Most of the DNA in the new egg cell is
- A identical to the healthy human cell
 - B different from the cow skin cell
 - C identical to the enucleated egg cell
 - D different from the healthy human cell
38. In which stages in the diagram above are transgenic cells present?
- A stages 1 and 2
 - B stages 1 and 3
 - C stages 2 and 3
 - D stages 1, 2 and 3
39. What happens next to the cell produced in stage 3 above?
- A it is grown in a test-tube
 - B it develops into a cow
 - C it is implanted into a cow
 - D it is used to make antibodies

40. The cows produced by this process need to be tested to see if the process has worked. The best way to do this is to look for

- A antibody DNA in their milk
- B antibody genes in their cells
- C antibodies in their blood
- D antibodies in their milk

TOTAL FOR HIGHER- TIER PAPER: 24 MARKS.

End of paper

ANSWER SHEET

Question	Answer
1	C
2	C
3	A
4	B
5	A
6	B
7	B
8	D
9	A
10	A
11	A
12	D
13	B
14	D
15	C
16	C
17	D
18	D
19	A
20	C
21	C
22	B
23	D
24	B
25	B
26	A
27	D
28	D
29	A
30	C
31	B
32	B
33	B
34	B
35	B
36	C
37	D
38	B
39	C
40	D