

## **GCSE Biology A (Gateway)**

**J247/02 B4-B6 and B7 Foundation (Foundation Tier)**

### **Question Set 3**

Multiple Choice Questions

B6: Global Challenges

1. Many habitats are being destroyed.

It is important to stop habitat destruction to maintain:

- A Active transport
- B Biodiversity
- C Differentiation
- D Homeostasis

Your answer

B

[1]

2. Organisms in an ecosystem are affected by **biotic** factors.

Which term is a biotic factor?

- A Disease
- B Light intensity
- C Rainfall
- D Wind speed

Your answer

A

[1]

3. The DNA of an unborn baby can be found in the blood sample of the mother. This DNA is tested to see which chromosomes are present. Which conclusion is correct for the unborn baby?

- A It must be a boy if an X chromosome is present.
- B It must be a boy if a Y chromosome is present.
- C It must be a girl if an X chromosome is present.
- D It must be a girl if a Y chromosome is present.

Your answer

**B**

[1]

4. Different diseases are caused by different pathogens.

Which type of pathogen causes tobacco mosaic disease?

- A A bacterium
- B A fungus
- C A protist
- D A virus

Your answer

**D**

[1]

5. What may a vaccine contain?

- A Antibiotics specific to the microbe
- B Dead microbes
- C Memory cells
- D Small numbers of live harmful microbes

Your answer

**B**

[1]

6. Scientists want to make human stem cells from body cells rather than getting stem cells from embryos.

Why is this?

- A Human embryos are single-celled.
- B Some people object to destroying human embryos.
- C Stem cells cannot be found in human embryos.
- D The cells in human embryos are all differentiated.

Your answer

B

[1]

7. Why is it difficult to kill cancer cells in the body?

- A They are body cells and so the body's defence system does not attack them.
- B They are foreign cells that are not destroyed by antibiotics.
- C They divide very slowly.
- D They hide inside other body cells, away from the body's defence system.

Your answer

A

[1]

8. Heart disease affects a large number of people.

Which factor contributes to heart disease?

- A Being a non-smoker
- B Lack of exercise
- C Low fat diet
- D Not drinking alcohol

Your answer

B

[1]

9. Look at the table.

It shows the death rates from coronary heart disease (CHD) in the UK in 2008.

Death rates from CHD per 100,000 population			
Age 55–64		Age 65–74	
Men	Women	Men	Women
175	47	443	179

In 2008 the total number of deaths per 100,000 in both age ranges was

844. What percentage of these deaths were women?

- A 5.6%
- B 21.2%
- C 22.6%
- D 26.8%

$$\frac{47 + 179}{175 + 47 + 443 + 179} \times 100 = 26.77\%$$
$$= \boxed{26.8\%}$$

Your answer

D

[1]

10. Tears and stomach juices are important in the body's response to pathogens.

	Tears	Stomach juices
A	Acid	Antibiotics
B	Antibiotics	Antibodies
C	Antibodies	Lysozyme
D	Lysozyme	Acid

Which row of the table correctly describes what substances are found in tears and stomach juices?

Your answer

D

[1]

11. Which statement describes how vaccines

work?

A Cause the body to produce antibodies.

B Cause the release of antigens.

C Contain antiviral drugs.

D Make platelets more active.

[1]

Your answer

A

12. A scientist was studying a population of snails.

He caught 60 snails in the first sample. He marked them and released them.

He caught 50 snails in the second sample. 20 of the snails were marked.

Use this equation:  $\text{estimated population} = \frac{\text{number caught in first sample} \times \text{number caught in second sample}}{\text{number in second sample that are marked}}$

What is the estimated population?

A 150

B 2400

C 3000

D 60000

$$\frac{60 \times 50}{20} = 150$$

[1]

Your answer

A

13. A gardener releases spiders into a greenhouse. They eat the insects which are eating her plants.

What is this an example

of?

- A Biological control
- B Gene technology
- C Homeostasis
- D Parasitism

[1]

Your answer

A

14. In selective breeding which organisms breed?

- A Humans choose which organisms breed.
- B Organisms that are best suited to their environment will breed.
- C Random organisms will breed.
- D The youngest organisms will breed.

[1]

Your answer

A

15. A scientist is estimating the number of rabbits in a field.

He has eight different estimates, 12, 12, 13, 15, 17, 19, 22 and 26. Which is the median value for his estimates?

- A 8
- B 12
- C 16
- D 17

$$\frac{15 + 17}{2} = 16$$

[1]

C

16. Plants can be grown in water.

What is the name of this growth method?

- A Active transport
- B Germination
- C Hypothermia
- D Hydroponics

Your answer

D

17. Which is a **chemical** defence of plants?

- A Antimicrobial substances
- B Cell walls
- C Leaf cuticles
- D Thorns

Your answer

A

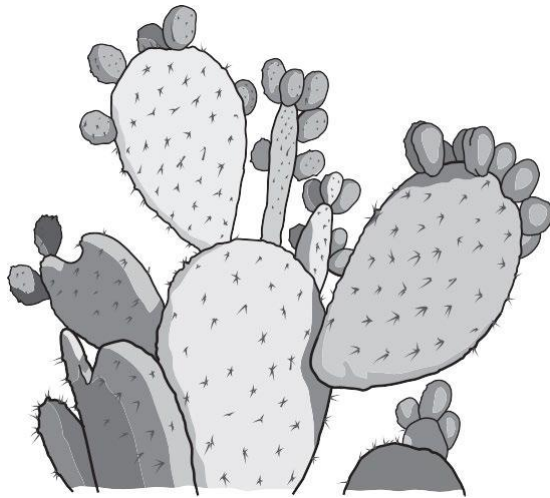
18. Why are stem cells useful for repairing damaged tissues?

- A They are easily obtained from any organ.
- B They are not attacked by pathogens such as bacteria.
- C They are haploid.
- D They can divide to form different types of cell.

D



19. The prickly pear is a cactus plant that was introduced into Australia.



The prickly pear cactus spread across the country.

To control the spread of the prickly pear cactus, a caterpillar was released to eat it. What is the name of this type of control?

- A Biodiversity
- B Biological
- C Mutualism
- D Pesticide

Your answer

B

[1]

20. Which statement about health is true?

- A Health is the absence of disease.
- B A person who is free from disease must be healthy.
- C A person can have a serious disease and be healthy.
- D A person can be free from disease and not be in good health.

Your answer

A

[1]

21. Which of these gives a correct risk factor for the named disease?

	Disease	Risk factor
A	bronchitis	exercise
B	cardiovascular disease	diet rich in saturated fat
C	type 1 diabetes	alcohol
D	cirrhosis of the liver	smoking

Your answer

B

[1]

22. What do most vaccines contain?

- A Antivirals
- B Dead or weakened pathogens
- C Specific antibiotics
- D White blood cells

Your answer

B

[1]

23. A student estimates the number of snails in a pond. Part of his method involves collecting snails and marking them.

What is the name of the method he is using?

- A Aseptic technique
- B Capture-recapture
- C Percentage increase
- D Scaling-up

Your answer

B

[1]

24. Look at the bacterial cell that causes disease in humans.

The human eye can see objects 0.1 mm in size.

What minimum magnification will be needed before the eye can see this bacterial cell?

A 12.5x

1-10  $\mu\text{m}$

B 125x

C 1250x

D 12500x

$$1 \times 10^{-6} \text{ m} \Rightarrow 0.1 \times 10^{-3} \text{ m}$$

$\xrightarrow{\times 100}$

Your answer

13

[1]

Total Marks for Question Set 3: 24

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