

BIOLOGY

Paper 1522/12
Multiple Choice (Core) 12

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

General comments

The exam paper provided both a balance of questions and challenge for candidates working at this level. There was good understanding of: the definition of nutrition; enzymes are made of proteins; the nutrients needed for healthy bones; the pathway of a simple reflex arc, and that biological washing powders contain enzymes. Less understanding was demonstrated for the distinctions between active transport, diffusion and osmosis. Some candidates could identify the renal vein on a diagram of the human kidneys. Some candidates were able calculate the percentage increase in breathing rate. The differences between continuous and discontinuous variation were not widely understood. It is important for candidates to work methodically through information provided in questions, such as **Question 33**.

Comments on specific questions

Questions 1, 9, 10, 11, 12, 13, 25 and 37 were answered correctly by most candidates.

Question 3

While many candidates correctly identified the arthropod as a crustacean, some incorrectly believed it was an arachnid. The two claws on the crustacean are also appendages.

Question 5

Many candidates were able to correctly calculate the magnification.

Question 6

This appeared to be a challenging question. Some candidates seemed unclear about the distinctions between active transport, diffusion and osmosis.

Question 7

The fact that the graph indicated that active transport was taking place was appreciated by many candidates, although some candidates incorrectly opted for 'diffusion.'

Question 14

While many candidates correctly identified the definition of assimilation, some candidates incorrectly believed that this was the definition of egestion.

Question 15

Many candidates understood that the part of the alimentary canal where most water is absorbed is the small intestine. Some candidates incorrectly believed that the large intestine is the part of the alimentary canal where most water is absorbed.

Questions 17

Some candidates correctly identified the pathway of water as it moves from the soil, through a plant. The correct pathway is: root hair cells → root cortex cells → xylem → mesophyll cells → stomata.

Question 19

Only some candidates were able to correctly identify the renal vein on a diagram of the human kidneys.

Question 20

While many candidates opted correctly, some candidates incorrectly believed that antibodies help to prevent pathogens reaching the alveoli when breathing in.

Question 21

Many candidates appreciated that gas exchange surfaces have a large surface area, a good blood supply and thin walls.

Question 22

This proved to be a challenging question with only some candidates correctly calculating the percentage increase in breathing rate.

Question 23

Some candidates understood which information was correct for anaerobic respiration.

Question 24

Few candidates appreciated that when protein is eaten in excess, it will cause a rise in the urea content of urine.

Question 26

Some candidates were able to identify a blood vessel, a receptor and a sweat gland on a diagram of the skin.

Question 27

Only some candidates were able to correctly identify the diagram that shows the appearance of the seedling after a four-day period.

Question 28

Some candidates knew that alcohol is a depressant. A common misconception was that alcohol reduces reaction times.

Question 30

Few candidates correctly identified the sequence of development that produces a fetus, that is: gametes → zygote → embryo.

Question 31

Some candidates appreciated that menstruation occurred during days 0–4. This is the time shown on the graph when the thickness of the uterus lining declines.

Question 33

Only a small minority of candidates appreciated that any plants that had one dominant R allele would have the same phenotype.

Question 34

This proved to be quite a challenging question with only some candidates appreciating that sex is a discontinuous characteristic.

Question 39

Many candidates appreciated that the hormone insulin reduces the concentration of glucose in the blood. Some candidates incorrectly opted for 'adrenaline.'