

3E Biology EOY 2023 ANSWER SCHEME

Paper 1 : Multiple Choice Questions (40 marks)

1	2	3	4	5	6	7	8	9	10
A	D	B	D	C	B	D	B	B	C
11	12	13	14	15	16	17	18	19	20
B	B	A	A	C	B	B	D	C	D
21	22	23	24	25	26	27			
C	A	D	D	A	B	C			

Paper 2 - SECTION A: Short Answer Questions (70 marks)

Answer all questions in the spaces provided.

1 (a) (i) A [1]

(ii) D [1]

(b) cell wall [1] and chloroplast [1]

(c) (i) Root hair cell has a long and narrow root hair/protrusion
This increases the surface area to volume ratio for faster absorption of water [1]

(ii) active transport [1]
provide/release energy through respiration [1]

2 (a) The water potential of the potato strips is lower than the water potential of the sucrose solution.[1]

Water molecules move of the potato by osmosis through the partially permeable membrane [1]

The potato strip increased in mass by 2 units.[1]

(b) The concentration of the potato strips is 5 arbitrary unit [1]
At this concentration the change in mass is 0 unit/ there is no change in

mass of potato strips [1]

there is no net movement of water into and out of the potato strips/ there is no water potential gradient [1] as the water potential of the sucrose solution and potato strips are the same.

- 3 (a) There are glucose [1] in the drink. There is no need to digest glucose/glucose can be absorbed immediately into bloodstream [1]. Glucose is used in respiration, to release energy [1]
- (b) A white emulsion is observed [1]
- (c) (i) Glycogen [1]
- (ii) Liver and muscles [1] (no marks if only 1 is correct)
- 4 (a) (i) A, B, D or F
Any two ans - [2]
- (ii) C, E or F
any two ans- [2]
- (b) (i) The pancreas/small intestine secrete protease [1]
The nutrients (fats, carbohydrates and protein) in the food can still be digested and absorbed into blood stream. [1]
- (ii) Any one answer- [1]
- Food should be well mashed/ soft/ liquefied as the stomach is no longer there to churn food into chyme [1]
- Food should be as clean as possible/ Raw food should be avoided [1] as the acidic gastric juice is no longer there to kill bacteria
- Food should be taken in small amounts [1] as the stomach is no longer there to churn for a few hours
- Cut down on food rich in protein [1] as digestion of protein will be slower.
- 5 (a) (i) D is the capillaries [1]
- (ii) The permeability of blood vessel D(capillaries) is the highest/ capillaries have partially permeable membrane [1]
Capillaries do not have muscles and elastic tissue [1]

- (b) (i) **A** : Aorta **C** : pulmonary vein
B : pulmonary artery **D** : bicuspid valve

2 correct -1 m
3 correct -1 m
4 correct -2 m

- (ii) Oxygenated blood from the left side will mix with deoxygenated blood from the right side/ Blood that is pumped out of the aorta is not fully oxygenated/contains less oxygen [1]

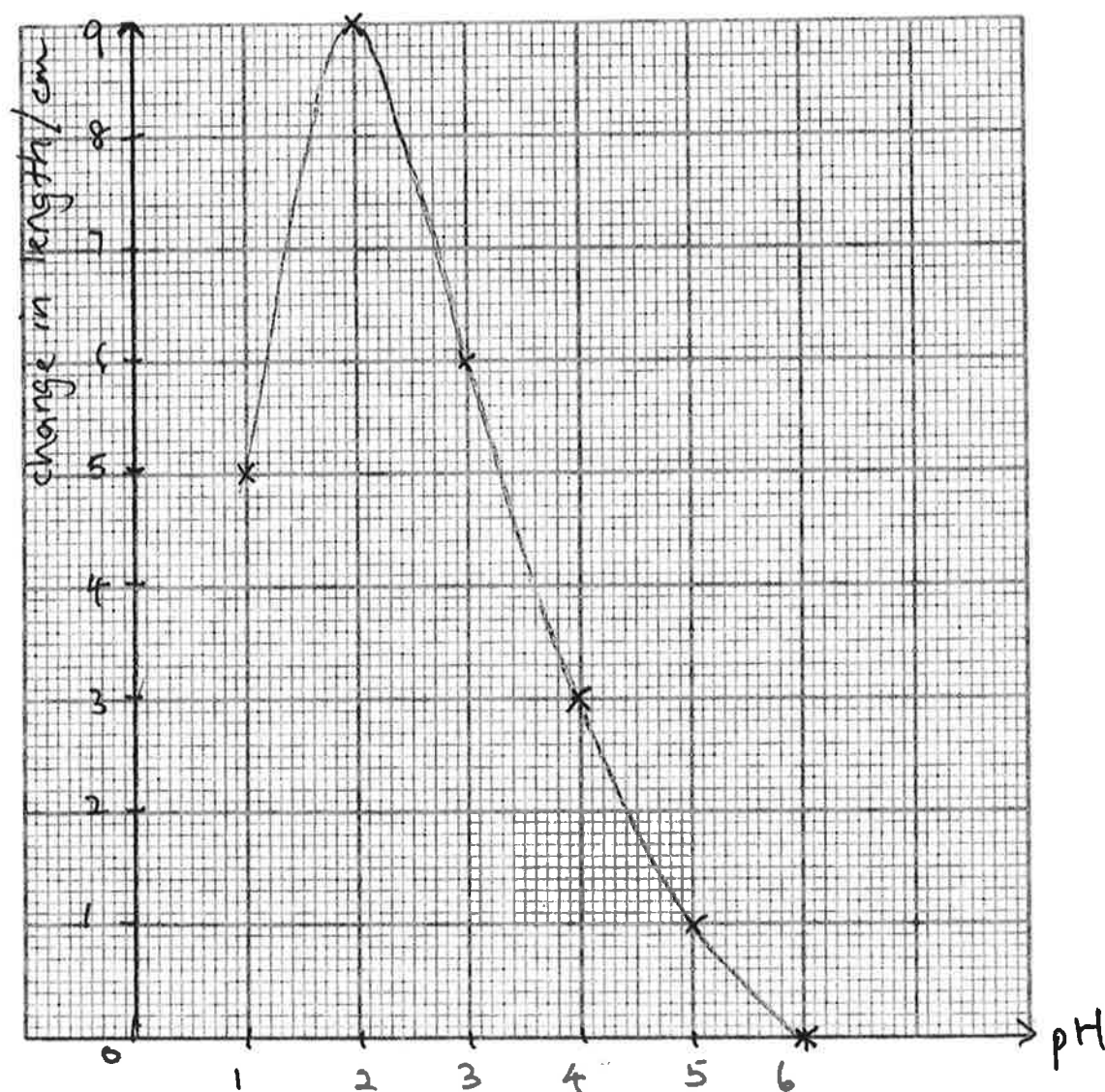
The person cannot engage in physical activities/ often feel tired [1] as the cells/tissues will not receive sufficient oxygen

Accept any logical answers.

- 10 (a) Write an appropriate heading and units [1]
Correct change in length and 1 decimal placing [1]

pH of solution	change in length of meat strip /cm [1]
1	5.0
2	9.0
3	6.0
4	3.0
5	1.0
6	0.0

(b)



Correctly labelled axes [1]

Reasonable scale (graph is large enough to fill 50% of the space in both directions); [1]

Correct plotting of points; [1]

(c) **Describe-**

As pH increases from 1 to 2, change in length of meat strip increases by 4 cm/ increases from 5 cm to 9 cm. [1]
or

At pH 2, the change in length is the greatest at 9 cm.

Explain-

The molecules have more kinetic energy/ The rate of effective collision between the molecules increases [1]

Describe

As the pH increases from 2 to 6, change in length of meat strip decreases [1] as rate of enzyme activity decreases.

Explain- Any 2 answers

Enzymes becomes denatured

The active sites changed in shape and is no longer complementary to the substrate / substrate cannot bind to active site

Enzyme-substrate complex cannot be formed/ rate of reaction decreases

