

BIOLOGY

Unit 3

Trial Examination

ANSWER BOOK

Structure of book

Area	Number of questions	Number of questions to be answered	Number of marks	Suggested times (minutes)
A	25	25	25	30
B	5	5	50	60
Total			75	90

- Students are permitted to bring into the examination room: pens, pencils, highlighters, erasers, sharpeners and rulers.
- Students are NOT permitted to bring into the examination room: blank sheets of paper and/or white out liquid/tape.
- No calculator is allowed in this examination.

Materials supplied

- Question and answer book of 17 pages with a detachable answer sheet for multiple-choice questions inside the front cover.

Instructions

- Detach the answer sheet for multiple-choice questions during reading time.
- Write your **name** in the space provided above on this page and on the answer sheet for multiple-choice questions.
- All written responses should be in English.

At the end of the examination

- Place the answer sheet for multiple-choice questions inside the front cover of this book.

Use this page as an overlay for marking the multiple choice answer sheets. Simply photocopy the page onto an overhead projector sheet. The correct answers are open boxes below. Students should have marked their answers with a cross. Therefore, any open box with a cross inside it is correct and scores 1 mark.

1.		B	C	D
2.	A		C	D
3.		B	C	D
4.	A	B		D
5.	A	B	C	
6.	A	B		D
7.		B	C	D
8.	A	B		D
9.	A		C	
10.	A		C	D
11.		B	C	D
12.	A	B	C	
13.	A	B		D

14.	A		C	D
15.	A	B	C	
16.	A	B		D
17.	A	B		D
18.	A		C	D
19.		B	C	D
20.	A	B		D
21.	A		C	D
22.	A	B		D
23.	A	B	C	
24.	A	B	C	
25.		B	C	D

TEACHERS, PLEASE NOTE:

In marking the Exam, teachers should keep in mind that the language used in the suggested answers is sometimes more sophisticated than a student would offer since these answers are written for teachers' information in their correction of the Exam.

*The answers suggested here might not be the only correct responses possible. Teachers must use their professional judgement in awarding marks for other answers offered. However, in accordance with the VCAA practice, students who give a correct response, and then offer a contradictory incorrect response within the same part of the question, should **not** be awarded any marks for the correct part of the response. Also in accordance with the VCAA practice, no half marks should be given.*

SECTION A - MULTIPLE CHOICE QUESTIONS (1 mark each: 25 marks)

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

SECTION B - WRITTEN RESPONSES**Question 1**

- a Bacteria gathered as a result of oxygen production, an indicator of photosynthetic activity. As more bacteria gathered at the red and blue parts of the spectrum, this supports Englemann's hypothesis that different parts of the spectrum have a different effect on the rate of photosynthesis. 2 marks
- b Temperature kept constant or light intensity kept constant. 1 mark
- c Englemann's conclusion would be that photosynthesis occurs at a greater rate in red and blue light than in other parts of the visible spectrum. 1 mark
- d Oxygen 1 mark
- e $6\text{CO}_2 + 6\text{H}_2\text{O} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$ 2 marks

Total Question 1: 7 marks**Question 2**

- a Phytophthora is a eukaryote 1 mark
- b Eukaryotic cells have a membrane bound nucleus. Phytophthora is a fungus and therefore has a membrane bound nucleus making it a eukaryote. 1 mark
- c Xylem vessels 1 mark
- d
 - Large numbers of spores
 - Withstand dry conditions
 - Flagella
 - Mycelium
 (Any three for 3 marks) 3 marks

- e Large no. of spores increases the chances of a spore reaching a host plant.
Greater chance of survival by withstanding adverse conditions
Flagella enable movement through the soil to a new host
The mycelium being able to spread to a new plant by contact
(Any one well explained for two marks) 2 marks
- f Less susceptible plants could have the ability to wall off the infection to prevent further spread of the mycelium. 1 mark
- g The transport of infected soil on vehicles such as fire fighting, logging and roadwork vehicles. Shoes of bush walkers.
(Anything sensible) 1 mark
- h Brush soil off vehicles, bikes, boots etc. before and after each trip. Vehicles, bikes and people to stay on designated roads in infected areas. Report the death of groups of susceptible plants to national Park Officers. 1 mark
- Total Question 2: 11 marks**

Question 3

- a Neurotransmitter 1 mark
- b Acetylcholine interacts with the post synaptic membrane causing an electrical response. 1 mark
- c The alpha toxin binds to or adjacent to the receptor protein for the acetylcholine, due to a similar structure, thus blocking the signal arriving at the muscle. 2 marks
- d Antibodies. 1 mark
- e B lymphocytes 1 mark
- f The small amounts of venom do not cause the horse to become sick but with each injection the horse makes more antibodies as a secondary response to the snake venom, so that the yield of antibodies is maximized. 2 marks
- g
 - Macrophages ingest the foreign antigen (the snake venom) which is then displayed on the surface of the macrophage
 - B cell attaches to the displayed antigen
 - T helper cell binds to macrophage, stimulating the B cell to differentiate into a plasma cell.
 - Antibodies are produced by differentiated B cell
 3 marks
- h Passive immunity 1 mark
- i The patient receives ready made antibodies to counteract the toxin by combining with it to make it chemically inactive. 1 mark
- Total Question 3: 13 marks**

Question 4

- a Convection and conduction 2 marks
- b The larger the animal the smaller the surface to volume ratio and the less heat loss and the smaller the animal the larger the surface to volume ratio and the more heat loss. 2 marks
- c The platypus. Over a period of two hours in the water the temperature of the platypus remained relatively constant. 2 marks
- d Aerobic respiration. 1 mark
- e The rate of blood flow would be reduced to the extremities(1 mark) and less heat would be lost to the external surroundings. (1 mark) 2 marks
- f As the arterial blood at 32 °C enters the tail, bill, or hind legs, and moves towards the extremities, heat passes to the cooler venous blood returning from the extremities(1) as the vessels lie close together (1). As a result when the blood reaches the periphery it is at a lower temperature and therefore loses less heat to the external surroundings (1). 3 marks
- Total Question 4: 12 marks**

Question 5

- a* *Pancreatic cells* *1 mark*
- b* *i* *Hormone* *1 mark*
- ii* *insulin* *1 mark*
- c* *Mainly liver, muscle and fat cells. (Any one for a mark)* *1 mark*
- d* *Negative feedback* *1 mark*
- e* *As glucose level drops this reduces the stimulus at A (increased levels of glucose) and therefore the receptor B produces less insulin and the blood glucose level goes up as it is not taken up by the body cells.* *2 marks*

Total Question5: 7 marks***Total Section B: 50 marks******Total examination: 75 marks***