Lumen Christi College

Semester Two Examination, 2022

Question/Answer Booklet

AEBLY

Biology

Student Number: In figures

In words _____

_____

Time allowed for this paper

Reading time before commencing work: ten minutes
Working time for paper: three hours

Materials required/recommended for this paper

To be provided by the supervisor

This Question/Answer Booklet
Multiple-choice Answer Sheet

To be provided by the candidate

Standard items: pens (blue/black preferred), pencils (including coloured, sharpener, correction fluid/tape, eraser, ruler, highlighters
Special items: up to three calculators, which do not have the capacity to create or store programmes or text, are permitted in this examination

Important note to candidates

No other items may be taken into the examination room. It is **your** responsibility to ensure that you do not have any unauthorised material. If you have any unauthorised material with you, hand it to the supervisor **before** reading any further

Structure of this paper

Section	Number of questions available	Number of questions to be answered	Suggested working time (min)	Marks available	Percentage of examination
SECTION ONE Multiple-choice	30	30	40	30	30
SECTION TWO Short answer	5	5	90	100	50
SECTION THREE Extended answer Part A	2	1	50	40	20
Part B	2	1			
				Total	100

Instructions to candidates

1. The rules for the conduct of the Western Australian external examinations are detailed In the *Year 12 Information Handbook 2022*. Sitting this examination implies that you agree to abide by these rules.

2. Write your answers in this Question/Answer booklet preferably using a blue/black pen. Do not use erasable or gel pens.

3. Answer the questions according to the following instructions.

   Section One: Answer all questions on the separate Multiple-choice answer sheet provided. For each question, shade the box to indicate your answer. Use only a blue or black pen to shade the boxes. Do not use erasable or gel pens. If you make a mistake, place a cross through that square, then shade your new answer. Do not erase or use correction fluid/tape. Marks will not be deducted for incorrect answers. No marks will be given if more than one answer is completed for any question.

   Section Two: Write your answers in this Question/Answer booklet. Wherever possible, confine your answers to the line spaces provided.

   Section Three: Consists of two parts each with two questions. You must answer one question from each part. Tick the box next to the question you are answering. Write your answers in this Question/Answer booklet.

4. You must be careful to confine your answers to the specific questions asked and to follow any instructions that are specific to a particular question.

5. Supplementary pages for planning/continuing your answers to questions are provided at the end of this Question/Answer booklet. If you use these pages to continue an answer, indicate at the original answer where the answer is continued, i.e., give the page number.

Section One: Multiple-choice 30% (30 marks)

This section has 30 questions. Answer all questions on the separate Multiple-choice answer sheet provided. For each question, shade the box to indicate your answer. Use only a blue or black pen to shade the boxes. Do not use erasable or gel pens. If you make a mistake, place a cross through that square, then shade your new answer. Do not erase or use correction fluid/tape. Marks will not be deducted for incorrect answers. No marks will be given if more than one answer is completed for any question.

Suggested working time: 40 minutes.

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1. In 2019, between Christmas and New Year, lightning sparked fires. Two fires tore through more than 40,000 hectares of Western Australia's Stirling Range National Park, decimating rare and unique flora and fauna. Across the following three years, species have been observed to re-establish. If there are no fires for more than thirty years, there is a high probability of total species recovery.

   Which best describes the above situation?

   (a) Primary succession.
   (b) Secondary succession.
   (c) Habitat degradation.
   (d) Competitive exclusion.

2. What characterises a biodiversity hotspot?

   (a) An area with a large variety of animal and plant life.
   (b) An area with numerous introduced species where native species are at great risk of extinction.
   (c) An area with more than 1500 endemic plant species that has lost more than 70% of its native habitat.
   (d) A place where the full range of one ecosystem’s living organisms have accumulated in one spot.

3. Which species will be most closely related?

   (a) Those that share the same kingdom.
   (b) Those that share the same domain.
   (c) Those that share the same order.
   (d) Those that share the same class.

Questions 4 to 8 are based on the following information.

Melophoris wheeleri is a species of small brown ant that is endemic to Australia. The ants, approximately 5 mm in length, are widespread across the continent and are considered an arid to semi-arid species. *Melophoris wheeleri* are specialist seed harvesters and obligate granivores. The ant species is known to include seeds of exotic plants in their diet. In Western Australia *Melophoris wheeleri* have a distribution ranging from the Pilbara, to the Goldfields, and as far south as Perth. There are three known subspecies; one is common in Perth gardens.

See next page

4. *Melophoris wheeleri* would best be classified as a

   (a) producer.
   (b) primary consumer.
   (c) secondary consumer.
   (d) apex predator.

5. According to the morphological species definition, the three subspecies would be distinguished by

   (a) their differences in structural characteristics.
   (b) their inability to breed and produce viable offspring.
   (c) differences in spatial distribution.
   (d) the time they spend within each ecological zone.

6. For *Melophorus wheeleri* to be considered a keystone species

   (a) they must play a critical role in maintaining the structure and function of the ecosystem.
   (b) a reduction in their numbers must have little impact on the ecosystem survivability.
   (c) given their relatively low biomass their disappearance would have a greater impact than would be expected.
   (d) they must have very high numbers and biomass and have a large impact on the survivability of the ecosystem.

Questions 7 to 8 are based on the following information.

A Year 11 student on a Biology field trip in her local council reserve laid five pitfall traps. These were spread across the reserve. Each pitfall trap was set in line with the surface of the soil, had an open surface of $2cm^2$ and contained 10 mL of ethanol. After leaving the set traps for a 24-hour period, the student collected the samples and took these back to the laboratory. When in the laboratory, the student counted a total of 73 *Melophorus wheeleri*.

7. To calculate the density of the ant population, the student would need

   (a) to know the area of the reserve.
   (b) to know the area where the traps were laid.
   (c) to know the total area where the ants are active.
   (d) no more information. The student already has sufficient data.

8. The pitfall traps contained alcohol, which led to the death of captured animals. In this situation the pitfall trapping activity

   (a) required ethics approval because it led to the capture and death of animals.
   (b) required ethics approval because it had the potential to capture vertebrates.
   (c) did not require ethics approval because the work was for educational purposes.
   (d) did not require ethics approval because the traps were designed to capture non vertebrate species.

See next page

9. Within southwest Western Australia there are at least 12 ant subfamilies, comprised of 61 genera and at least 500 species. This indicates there is high

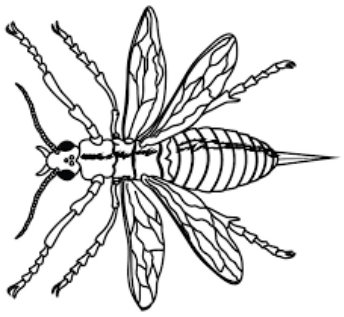
(a) genetic diversity.
(b) species diversity.
(c) ecosystem diversity.
(d) total biodiversity.

Question 10 refers to the dichotomous key presented below. The key is used to classify insects.

Dichotomous Key for Insects

1a	One pair of wings	go to 3
b	Two pairs of wings	go to 2
2a	Hind wings reduced to tiny knobs	Diptera
b	Hind wings not reduced to tiny knobs	go to 3
3a	Front and hind legs of similar size	go to 4
b	Front and hind legs not of similar size	go to 5
4a	Front and hind wings of similar size	go to 6
b	Front and hind wings not of similar size	Isoptera
5a	Antenna are short and bristly	Odonata
b	Antenna are not short and bristly	Hymenopta
6a	Head visible from above	Mantodea
b	Head covered by hook-like structure	Blattaria

10. Consider the insect illustrated below

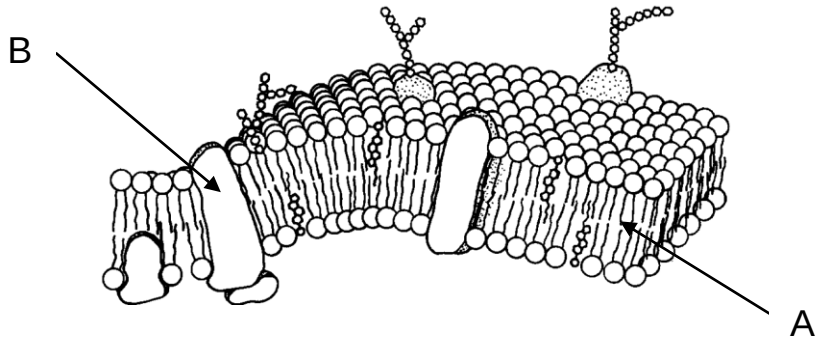


The insect illustrated would be classified as

(a) Odonata.
(b) Hymenopta.
(c) Mantodea.
(d) Blattaria.

See next page

Questions 11 and 12 refer to the diagram of the cell membrane presented below.



11. Structure A is best described as a

    (a) double layer of phospho-lipid molecules.
    (b) layer of globular protein molecules.
    (c) bi-layer of polar, carbohydrate molecules.
    (d) fluid arrangement of lipid molecules.

12. Structure B is a

    (a) receptor protein that controls movement of proteins across the membrane.
    (b) structural protein that stabilises the membrane molecules.
    (c) gap in the membrane that allows passage for large materials.
    (d) channel protein that provides for passive transport of materials.

13. Which of the following best describes the term ‘metabolism’.

    (a) The sum of physical and chemical processes that occur in an organism and are needed to sustain life.
    (b) All the chemical reactions that occur in an animal’s body.
    (c) The total of the physical and chemical processes that occur within an animal’s body that allow matter to be broken down.
    (d) The process of cellular respiration that occurs within the cells of plants or animals.

14. Inhibitors slow the rate of enzymatic reactions by

    (a) blocking the active site.
    (b) distorting the shape of the active site.
    (c) both (a) and (b).
    (d) neither (a) or (b).

See next page

15. Capillary, adhesion, and cohesion are terms to describe water. Which one of the following has the correct definitions for capillary, adhesion and cohesion?

	Capillarity	Adhesion	Cohesion
(a)	The capacity for particles to stick to a different surface.	The upwards movement of water through fine tubes.	The capacity for particles to stick together.
(b)	The capacity for particles to stick to a different surface.	The capacity for particles to stick together.	The upwards movement of water through fine tubes.
(c)	The capacity for particles to stick together.	The upwards movement of water through fine tubes.	The capacity for particles to stick to a different surface.
(d)	The upwards movement of water through fine tubes.	The capacity for particles to stick to a different surface.	The capacity for particles to stick together.

16. Which of the following best identifies an industrial scale application of the photosynthetic process?

(a) Local councils collect organic materials from residents' verges. The organic material is composted to produce a high-quality soil improver.
(b) Grapes are gathered at vineyards and placed in large fermentation vats. Following treatment with yeasts, wine and champagne is produced.
(c) Following industrial scale farming, the crops are harvested. The grain is used to produce biodiesel for machinery.
(d) Seaweed is grown in the Southern Ocean. The process increases biomass and combats climate change.

17. Which of the following best identifies the hierarchical organisation within multicellular organisms?

(a) Organs, tissues, systems and cells.
(b) Cells, tissues, organs and systems.
(c) Systems, cells, organs, tissues.
(d) Tissues, systems, cells and organs.

18. Which of the following below is the correct biomolecule match of the monomer with the correct polymer.

	Carbohydrates	Proteins	Lipids
(a)	Monosaccharide	Amino acid	Fatty acid + glycerol
(b)	Glycerol	Amino acid	Fatty acid
(c)	Amino acid	Monosaccharide	Fatty acid + glycerol
(d)	Monosaccharide	Amino acid	Glycerol

See next page

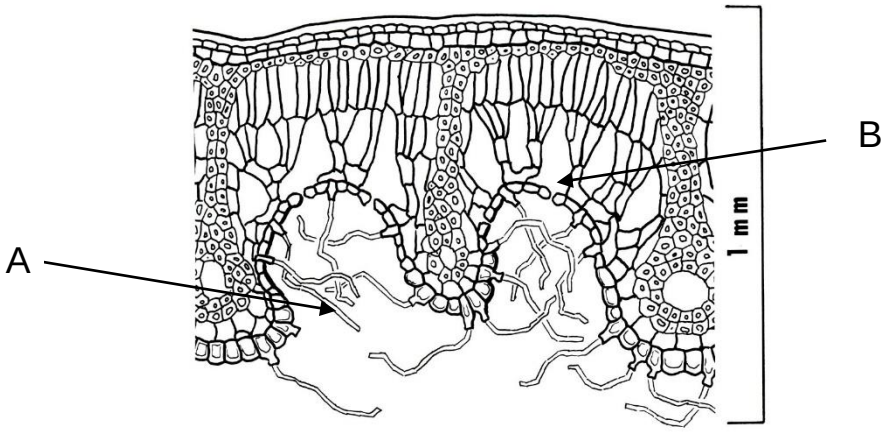
19. Which of the following would suggest a cell is prokaryotic?

(a) It is single celled.
(b) A cell wall is evident.
(c) Ribosomes are present.
(d) A circular chromosome is visible.

20. Which of the following most correctly identifies root pressure in plants?

(a) The force exerted by ions within plant roots.
(b) The force responsible for water rising through plant's stems.
(c) The force exerted by water as it moves sideways into a plants' roots.
(d) The pressure that the plants roots apply on the ground as they grow upwards.

Questions 21 and 22 refer to the diagram of a xerophyte leaf cross-section presented below.



21. Structure A is considered a xerophytic adaptation because it will help

(a) reflect the sun's radiation.
(b) create a region of moist air.
(c) shield the leaf surface from hot air.
(d) close stomates in hottest part of day.

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22. The position of structure B is considered a xerophytic adaptation because it

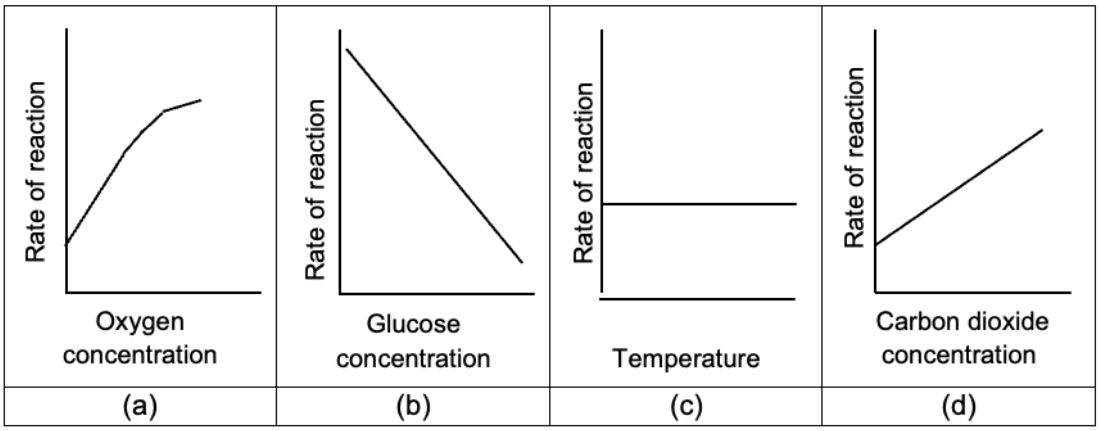
(a) provides for a physical barrier to evaporation.
(b) allows for the closure of stomates during the hottest hours of the day.
(c) removes the gas exchange surface from exposure to moving air.
(d) enhances the flow of water into the leaf.

23. Biomagnification

(a) occurs when biodegradable substances are passed between trophic levels.
(b) is present in every consumer but is greatest in high order predators.
(c) occurs because biomass increases at every trophic level.
(d) begins with producers converting light energy to chemical energy.

See next page

24. Which graph is true for cellular respiration?



25. Which of the following statements correctly identify phloem tissue?

(i) Living tissue.
(ii) Found just below the bark of dicotyledons.
(iii) Made solely of tracheids.
(iv) Contains sieve tube cells.
(v) Transports water and ions around the plant body.

(a) (i), (ii) and (iii).
(b) (i), (ii) and (iv).
(c) (ii), (iii) and (iv).
(d) (iii), (iv) and (v).

Questions 26 to 30 are based on the following information.

A group of students investigated the activity of an enzyme, pectinase. They used the method below.

1. Use a permanent pen to mark fifteen 100mL beakers with numbers 1 to15.
2. Place 50 grams of apple puree into each beaker.
3. Place 2 mL of buffer solution into each beaker.
   (i) Beakers 1-3 receive 2 mL of buffer pH 3.5,
   (ii) Beakers 4-6 receive 2 mL of buffer pH 5.5,
   (iii) Beakers 7-9 receive 2 mL of buffer pH 7.0,
   (iv) Beakers 10-12 receive 2 mL of buffer pH 8.5 and,
   (v) Beakers 13-15 receive 2 mL of buffer pH 10.0.
4. Add 1mL of pectinase concentrate to each beaker.
5. Place all beakers into a warm water bath maintained at 30^{o}C for 20 minutes.
6. Remove the beakers from the warm water bath and filter the solutions.
7. Measure the volume of filtrate collected from each beaker.
8. Record all data.

See next page

The data was recorded in the table below.

A	**Trial 1**	**Trial 2**	**Trial 3**	**Mean**	**Range**
3.5	11	13	12		
5.5	19	20	23	***B***	
7.0	27	35	29		
8.5	16	4	11		***C***
10.0	13	14	8		

26. Identify the correct label for the box indicated as ***A***.

    (a) Temperature of environment (°C)
    (b) Volume of apple puree (mL)
    (c) pH of solution
    (d) Beaker number

27. Identify the correct value for ***B***.

    (a) 21
    (b) 20.6
    (c) 20.66
    (d) 20.67

28. Identify the correct value for ***C***.

    (a) 4
    (b) 11
    (c) 12
    (d) 16

29. What type of graph would be most appropriate for this data?

    (a) Line.
    (b) Scatter.
    (c) Column.
    (d) Pie.

30. Identify the best explanation for the experimental results.

    (a) The temperature of the solution impacts the enzyme's active site and alters the rate of the chemical reaction.
    (b) The temperature impacts the speed at which the particles move, thereby impacting the collisions between enzyme and substrate particles.
    (c) The pH is impacting the shape of the enzyme's active site. Changes to the active site affect formation of the enzyme substrate complex.
    (d) The pectinase concentration was changed. More pectinase increases the formation of the enzyme substrate complex and speeds up the reaction rate.

End of Section One

See next page

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See next page

Section Two: Short answer 50% (100 marks)

This section has **five** questions. Answer all questions. Write your answers in the spaces provided.

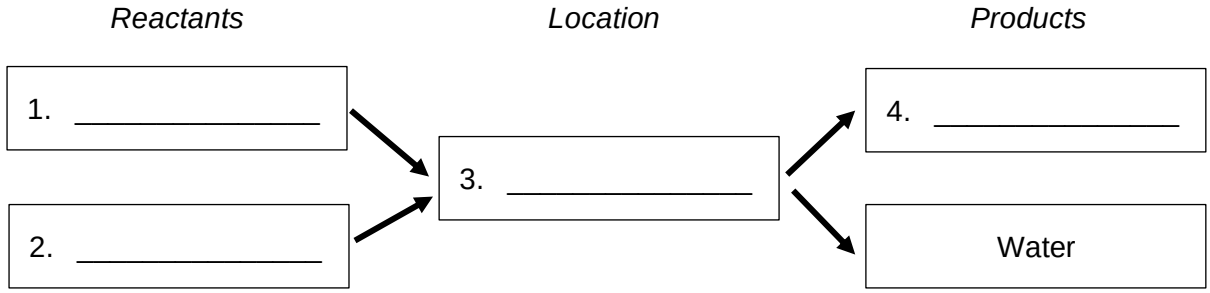
Supplementary pages for planning/continuing your answers to questions are provided at the end of this Question/Answer booklet. If you use these pages to continue an answer, indicate at the original answer where the answer is continued, i.e. give the page number.

Suggested working time: 90 minutes.

Question 31 [21 marks]

Cells obtain the energy required for their activities from the chemical process of respiration.

(a) The model below represents the process of aerobic respiration. Complete the model by placing the correct labels in each box. (4 marks)



(b) Describe how anerobic respiration is different when compared to aerobic respiration. (4 marks)

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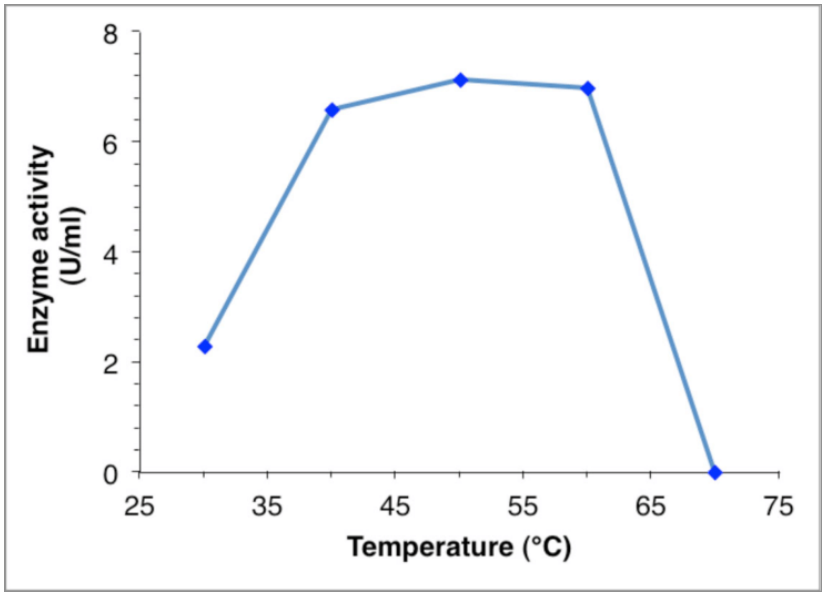
See next page

Both aerobic and anaerobic respiration require enzymes. Enzymes are influenced by a variety of conditions.

Examine the graph to the right that shows the effect of one condition on the activity of an enzyme required for respiration.



(c) Using the "Lock and Key" model of enzyme action, describe and explain what happens to enzyme action above 60ºC. (4 marks)

See next page

Consider the table below that shows the concentration of various ions in the cytoplasm of a marine algal cell and the surrounding seawater.

	Ion Concentration (g/L)	
Ion	**Algal Concentration**	**Seawater**
Sodium	18	35
Calcium	28	15
Magnesium	12	9

(d) (i) Identify and describe the process by which the cell would lose calcium ions from its cytoplasm, into the surrounding seawater. (2 marks)

(ii) Identify and describe the process by which the cell would gain magnesium ions from the surrounding seawater, into the cytoplasm. (2 marks)

Many organelles work together to achieve a combined function.

(e) Explain how mitochondria, the nucleus, ribosomes, golgi body and endoplasmic reticulum work together to produce extra cellular proteins. (5 marks)

See next page

Question 32 **[20 marks]**

Worldwide, freshwater lakes are increasingly being affected by algal blooms. This is particularly common in water bodies that receive urban and farm water runoff.

(a) Identify the cause of the algal blooms. (1 marks)

_____

(b) Explain how algal blooms impact the:

(i) biomass of the freshwater ecosystems. (3 marks)

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(ii) biodiversity of the freshwater ecosystems. (3 marks)

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(c) Identify two (2) conservation strategies that could be put in place to reduce the occurrence of algal blooms in freshwater lakes. (2 marks)

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_____

See next page

Increasingly, we hear that climate change is impacting the Earth's temperature and the concentration of carbon dioxide (CO_2) gases within the atmosphere.

(d) (i) Identify two natural processes that increase CO_2 levels in the atmosphere. (2 marks)

One: _____

Two: _____

(ii) Identify two natural processes that decrease CO_2 levels in the atmosphere. (2 marks)

One: _____

Two: _____

(e) Outline the human activities that can lead to elevated carbon levels in the earth's atmosphere. (4 marks)

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(f) Explain how the expected overall changes in the Earth's temperature will impact the dissolved carbon dioxide in the freshwater bodies. (3 marks)

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See next page

Question 33 **[20 marks]**

All organisms carry out gas exchange.

(a) In the table below, identify the gas or gases taken in and released by heterotrophs and autotrophs. (4 marks)

	Heterotrophs	**Autotrophs**
Gas or gases taken in.		
Gas or gases released.		

Multicellular animals carry out gas exchange through a variety of structures including spiracles, gills, alveoli and skin.

(b) Identify two (2) structural characteristics of an efficient gas exchange system. (2 marks)

One: _____

Two: _____

(c) Arthropods use spiracles, trachea and tracheoles to enable gas exchange. Explain how oxygen and carbon dioxide are exchanged between the air and tissues of the arthropod. (3 marks)

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See next page

Angiosperms have adaptations that enable gas exchange at the roots, stems and leaves.

(d) Explain the process that allows angiosperms to perform gas exchange at their leaf surfaces. (4 marks)

Many animals and plants employ an internal transport system of some nature to provide cells with their requirements. In most instances, these internal transport systems will be made up of a pump, transport vessels and a transport medium.

(e) Outline the similarities and differences between an amphibian's heart, with that of a mammal. (4 marks)

(f) In organisms that need an internal transport system, cell requirements are transported via a transport medium. Identify the transport medium used in: (3 marks)

Arthropods: _____

Fish: _____

Trees: _____

See next page

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Question 34 **[20 marks]**

An oyster farmer wanted to explore the possibility of farming his oysters in large tanks, located in a shed on his property. Currently, he farmed his oysters in a natural tidal estuary. A biologist suggested that he would need to conduct a number of investigations to determine the optimum strength of current needed to replicate the tidal estuary required to grow oysters.

The farmer followed the biologist's advice and obtained four, large tanks, filled each tank with water from the estuary and stocked each tank with 250 oysters. At the start of the investigation, the average biomass of the oysters in each tank was 1.30 grams.

The farmer began to record data, after one month. All oyster survived the investigation.

The results from one of these investigations is presented in the table below. Use this data to answer parts (a) – (e) below.

Tank	Strength of Current (m/min)	Average Oyster Biomass (g)		
		One Month	Two Months	Four Months
1	2.0	3.10	4.20	6.30
2	8.0	2.50	3.80	4.20
3	20.0	2.20	2.40	3.40
4	25.0	1.50	1.70	2.50

(a) (i) State the: (2 marks)

Independent Variable: _____

Dependent Variable: _____

(ii) State the hypothesis under investigation. (2 marks)

_____

_____

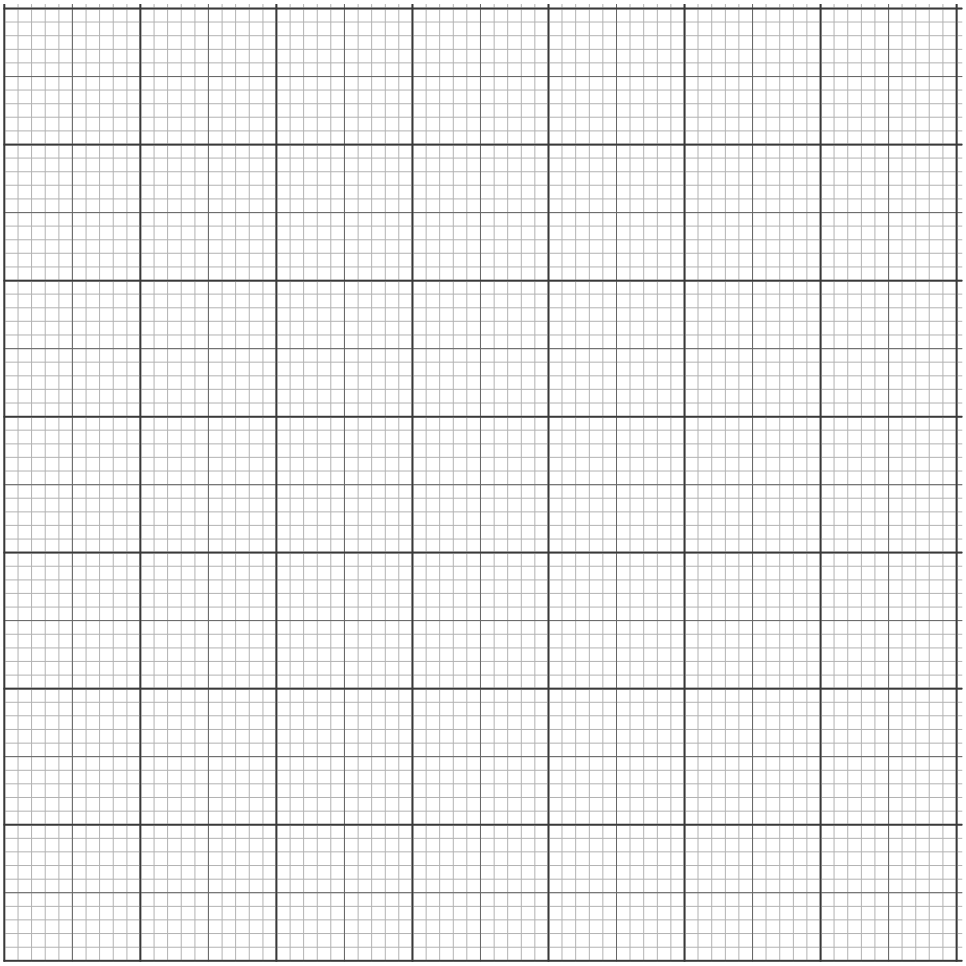
(b) (i) Can the data collected in this investigation be considered reliable? Explain why. (2 marks)

_____

_____

(c) On the graph paper provided, plot the data obtained at 4 months. (6 marks)

A spare grid is provided at the end of this booklet if you make an error and wish to have a second attempt. If you use the spare grid, clearly indicate that you have used it and cancel your work on this page.



(d) Using data from the table or graph to support your answer, state a likely conclusion the farmer could draw from this investigation. (4 marks)

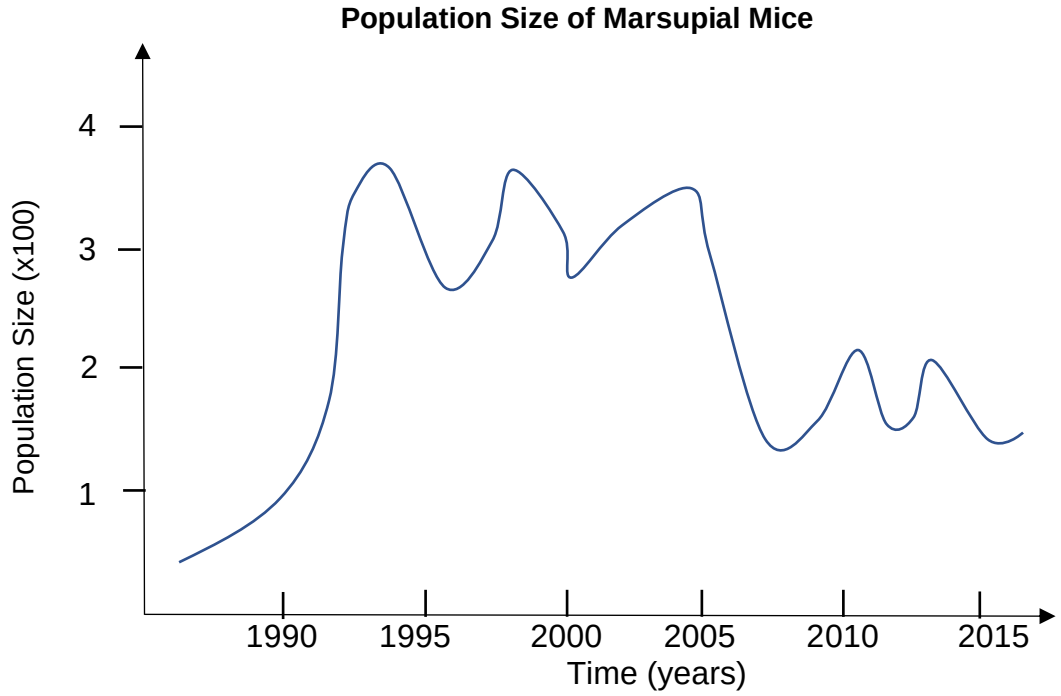
(e) (i) Consider Tank 2. Calculate the average monthly growth rate of the oysters, over the four-month period of the investigation. Show your working. (2 marks)

(ii) Consider Tank 2. Calculate the total biomass of the oysters in the tank, after the four-month period of the investigation. Show your working. (2 marks)

Question 35 **[19 marks]**

During the 1980s, a team of biologists noted that a population of marsupial mice on the West Australian mainland were experiencing a drastic decline in numbers. It was decided to take a small sample of the population and introduce them into a nature reserve. Over the following 30 years the population size of the marsupial mice were monitored.

The population data for these mice is shown on the graph below. Use this data to answer parts (a) - (c) below.



(a) Estimate the carrying capacity of the nature reserve between 1992 and 2005 and compare this to the carrying capacity of the nature reserve between 2007 and 2015. On the graph, indicate how you determined these values. (3 marks)

1992-2005: _____

2007 – 2017: _____

(b) (i) List two **density dependent** factors that could lead to the population change indicated on the graph between 1990 and 1993. (2 marks)

One: _____

Two: _____

(ii) List two **density independent** factors that could lead to the population change indicated on the graph between 2005 and 2007. (2 marks)

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One: _____

Two: _____

(c) Name and describe the sampling technique used to estimate the population size of the marsupial mice. (4 marks)

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Over the period of the study, the biologists noted that predation by foxes was a significant factor that Influenced the size of the marsupial mice population.

(d) (i) On the graph provided at the start of this question, indicate the likely size of the fox population in this nature reserve. (1 mark)

(ii) Name and explain one strategy that could be employed to limit the effect of foxes. (3 marks)

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In studying the marsupial mice and their community, the biologists examined a variety of interactions between the species present in the nature reserve.

(e) Consider the brief description of some of these interactions below and classify them as a biological relationship. (4 marks)

(i) A number of jarrah trees were covered by large numbers of fungi. _____

(ii) An examination of some marsupial mice revealed ticks buried in their skin. _____

(iii) At times, the rocks used for shelter by marsupial mice were overtaken by Bobtail lizards. _____

(iv) The foraging of the marsupial mice dislodged small beetles that were often eaten by small birds. _____

End of Section Two

Section Three: Extended answer 20% (40 Marks)

Section Three consists of four questions.

This section contains four (4) questions. You must answer **two (2)** questions; one (1) from Unit 1 and one (1) from Unit 2.

Use black or blue pen for this section. Do not use erasable or gel pens. Only graphs and diagrams may be drawn in pencil. Responses can include: labelled diagrams with explanatory notes; lists of points with linking sentences; labelled tables and/or graphs; and/or annotated flow diagrams with introductory notes.

Additional working space pages at the end of this Question/Answer booklet are for planning or continuing an answer. If you use these pages, indicate at the original answer, the page number it is planned/continued on and write the question number being planned/continued on the additional working space page.

Suggested working time: 50 minutes.

Unit 1

Choose either Question 36 or Question 37.

Indicate the question you will answer by ticking the box next to the question. Write your answer on pages 27– 30. When you have answered your first question, turn to page 31 and indicate the second question you will answer on that page.

Question 36 **(20 marks)**

Ecosystems are dependent on an energy source, energy transformations and transfers between trophic levels. In most ecosystems, the primary source of energy is solar.

(a) Explain how energy enters, moves through and exits ecosystems. Include a discussion of three ways that energy is used in the bodies of living things (10 marks)

Many biologists consider the loss of biodiversity on a global scale is the most pressing environmental issue of our generation.

(b) Outline the causes of this biodiversity loss and outline possible solutions that could be implemented to slow this loss. (10 marks)

OR

Question 37 **(20 marks)**

All biomass contains carbon, hydrogen and oxygen. Other elements, including nitrogen and phosphorus, are also frequently contained.

(a) Using carbon as an example, explain the movement of biomass through the living and non-living components of ecosystems. (10 marks)

“Fire is a dynamic factor that may have positive or adverse impacts on the environment."

(b) Considering the Australian context, discuss the above statement and the impacts fire can have on biodiversity. (10 marks)

Unit 2

Choose either Question 38 or Question 39.

Indicate the question you will answer by ticking the box next to the question. Write your answer on the pages provided.

☐ **Question 38** **(20 marks)**

(a) Chloroplasts are complex organelles with distinct compartments that carry out the different phases in photosynthesis. Identify these compartments and outline the photosynthetic processes that occur in each one. (10 marks)

(b) Compare and contrast the digestive system of a sea anemone, a sheep, and a dog. (10 marks)

OR

☐ **Question 39** **(20 marks)**

(a) While it is important that substances move in and out of cells, the rate at which this occurs is impacted by the surface area to volume ratio, concentration gradient differential, and the chemical or physical nature of the materials being exchanged.

Using examples, explain how each factor impacts the movement of substances. (10 marks)

(b) The transport of materials within a multi-cellular animal's internal environment is enabled by open or closed transport systems.

Identify animals that have open systems and others that have closed systems. Describe the structural characteristics of each system, and explain the positives and negatives associated with each system. (10 marks)

End of questions

Spare pages

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