Neap:

Trial Examination 2012

VCE Biology Unit 1

Written Examination

Question and Answer Booklet

Reading time 15 minutes
Writing time 1 hour 30 minutes

Student's Name: _____

Teacher's Name: _____

Structure of Booklet

Section	Number of questions	Number of questions to be answered	Number of marks
A	25	25	25
B	6	6	50
			Total 75

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 booklet of 16 pages.

Answer sheet for multiple-choice questions.

Instructions

Please ensure that you write your **name** and your **teacher's name** in the space provided on the answer sheet for multiple-choice questions.

All written responses must be in English.

At the end of the examination

Place the answer sheet for multiple-choice questions inside the front cover of this booklet and hand them in.

Students are NOT permitted to bring mobile phones and/or any other electronic communication devices into the examination room.

SECTION A: MULTIPLE-CHOICE QUESTIONS

Instructions for Section A

Answer **all** questions in pencil on the answer sheet provided for multiple-choice questions.
Choose the response that is **correct** for the question.
A correct answer scores 1, an incorrect answer scores 0.
Marks will **not** be deducted for incorrect answers.
No marks will be given if more than one answer is completed for any question.

Question 1

All cells have

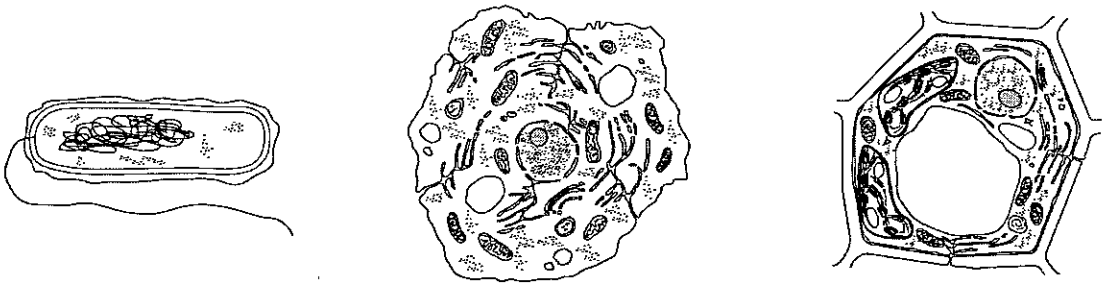
A. a nucleus.
B. a cell wall.
C. mitochondria.
D. ribosomes.

Question 2

When plant cells are compared to animal cells, a unique feature which all plant cells possess are

A. vacuoles.
B. chloroplasts.
C. a cell membrane.
D. a cell wall.

The following information relates to Questions 3 and 4.



cell *A* cell *B* cell *C*

The diagram above shows different cell types.

Question 3

Binary fission occurs in

A. all the above cells.
B. cell *A* only.
C. cell *B* only.
D. cells *B* and *C* only.

Question 4

Chloroplasts would be found in

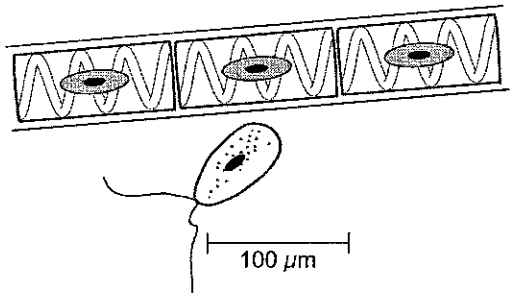
A. all the above cells.
B. cell *B* only.
C. cell *C* only.
D. cells *A* and *C* only.

Question 5

A feature which could be used to distinguish prokaryotic cells from eukaryotic cells is that prokaryotic cells

A. lack membranes.
B. have DNA.
C. lack membrane bound organelles.
D. have specialised structures compartmentalised for efficient cellular reactions.

The following information relates to Questions 6–9.



The diagram above shows an algal filament *Spirogyra* and a single-celled protozoan. The scale of the drawing is also given.

Question 6

An effective way to keep the cells alive and improve the contrast (to help observe the cells) would be to

A. stain the preparation.
B. reduce the iris diaphragm diameter.
C. reduce the magnification.
D. increase the light intensity.

Question 7

An estimation of the size of the nucleus in the protozoan is

A. 25 millimetres.
B. 50 micrometres.
C. 0.05 millimetres.
D. 25 micrometres.

Question 8

Spirogyra derives its name from the green spirals within each cell.

In these structures

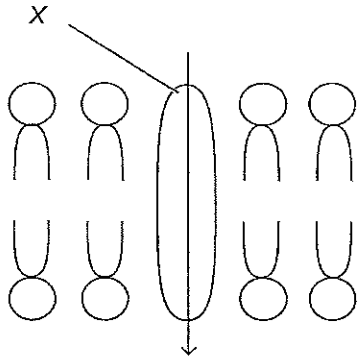
A. light is absorbed.
B. mitosis occurs.
C. organic material is converted to inorganic substances.
D. food is consumed.

Question 9

When comparing the different cells present, it is reasonable to conclude they can both

A. move.
B. respire.
C. photosynthisise.
D. be multicellular.

The following information relates to Questions 10 and 11.



The diagram above illustrates the basic structure of a cell membrane.

Question 10

The arrow above indicates the movement of glucose through *X* in the cell membrane by

A. facilitated diffusion.
B. diffusion.
C. osmosis.
D. exocytosis.

Question 11

The chemical composition of *X* is

A. lipid.
B. protein.
C. carbohydrate.
D. vitamins.

Question 12

A substance was chemically analysed and found to contain carbon, hydrogen, oxygen, nitrogen and phosphorus.

The group of organic compounds it belongs to is

A. proteins.
B. phospholipids.
C. nucleic acids.
D. carbohydrates.

Question 13

In fully formed skin tissue, cell death is balanced by

A. mitosis.
B. apoptosis.
C. meiosis.
D. binary fission.

Question 14

Bile

A. contains enzymes.
B. is strongly acidic.
C. emulsifies fat.
D. is produced by the pancreas.

Question 15

The action of bile is similar to the action of

A. chewing food by the teeth.
B. saliva in the mouth.
C. acid in the stomach.
D. enzymes in the small intestine.

Question 16

In mammals, oxygenated blood

A. is found in all arteries.
B. forms in the heart.
C. is converted to deoxygenated blood in muscles.
D. is found throughout the circulatory and lymphatic systems.

Question 17

In flowering plants, it would be reasonable to expect that

A. damage to the sieve tubes would prevent the movement of water from the roots to the leaves.
B. transpiration rates are highest on humid days.
C. sugar is transported to photosynthesising leaves.
D. minerals are transported by both xylem and phloem.

Question 18

When considering the mammalian circulatory system

A. valves are only found in veins.
B. thick muscular walls are characteristic of arteries and veins.
C. capillaries link arterioles to venules.
D. the lymphatic system returns excess tissue fluid to arteries.

Question 19

A feature which gills and lungs gave in common is

A. a large volume to surface area ratio.
B. air passing over them.
C. mechanical ventilation by muscles.
D. a rich blood supply.

Question 20

In the mammalian respiratory system, the exchange of gasses at the respiratory surface is achieved by

A. ventilation of the lungs by their contraction and relaxation.
B. the action of the diaphragm and inter costal muscles.
C. osmosis.
D. the nose.

Question 21

A component of the circulatory system and its correct function is

A. white blood cells to carry oxygen.
B. plasma to carry nutrients.
C. platelets to fight disease.
D. red blood cells to clot blood.

Question 22

Urea would be the primary nitrogenous waste excreted by

A. birds.
B. fish.
C. reptiles.
D. mammals.

Question 23

The organ responsible for the removal of urea from the blood is the

A. kidney.
B. liver.
C. pancreas.
D. bladder.

Question 24

When groups of animals are classified, the greatest similarities would be found in members of the same

A. class.
B. family.
C. species.
D. genus.

Question 25

When classifying organisms as either a bird or a mammal it would be important to determine

A. their habitat.
B. the presence of a backbone.
C. their body covering.
D. their mode of reproduction.

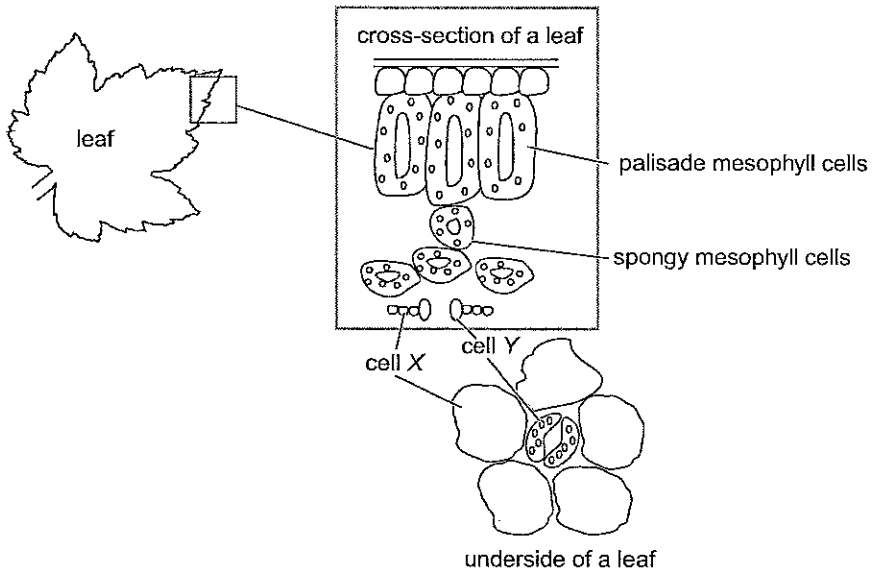
SECTION B: SHORT-ANSWER QUESTIONS

Instructions for Section B

Answer this section in **blue or black pen.**

Answer all questions in the spaces provided.

Question 1



a. Name cells *X* and *Y*.

Cell *X*: _____

Cell *Y*: _____

2 marks

b. *Y* cells make up a stomata.

i. Gases can enter and exit the plant.
Name a gas which would move out of the leaf and when this would occur.

_____

_____

ii. For the stomata to open, water moves into its cells.
Name the process by which water moves and define this process.

_____

_____

2 + 2 = 4 marks

c. *Y* cells and mesophyll cells have abundant green coloured organelles.

i. Name the organelle.

_____

ii. State the process which occurs there.

_____

iii. Give the word equation for this process.

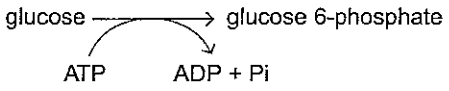
_____

_____

1 + 1 + 2 = 4 marks
Total 10 marks

Question 2

Consider the following reaction.



a. Name the substrate.

_____

1 mark

b. Is energy an input or output of this reaction? Explain your choice.

_____

_____

_____

_____

2 marks

c. Name the cellular process which produces large amounts of ATP and give the word equation for this process.

_____

_____

_____

_____

3 marks

d. **i.** What is the role of enzymes?

_____

_____

ii. For an enzymic reaction to proceed at an optimum rate, name **two** factors which need to be controlled.

_____

_____

2 + 2 = 4 marks
Total 10 marks

Question 3

The label of a particular brand of milk chocolate displays the following nutritional information.

	Per 100 grams
Energy	2050kJ
Protein	4.6g
Fat	
Total	20.9g
Saturated	13.2g
Carbohydrate	
Total	68.8g
Sugar (sucrose)	64.5g
Sodium	61mg

a. Name two carbohydrates other than sugar.

_____

_____

2 marks

b. With the information provided, which of fat or carbohydrate would provide the greatest energy? Explain your choice.

_____

_____

_____

_____

2 marks

c. Where within the human body does

i. physical digestion first occur?

_____

ii. chemical digestion of protein occur?

_____

1 + 1 = 2 marks

d. What role does the liver play in digestion?

_____

_____

_____

_____

2 marks

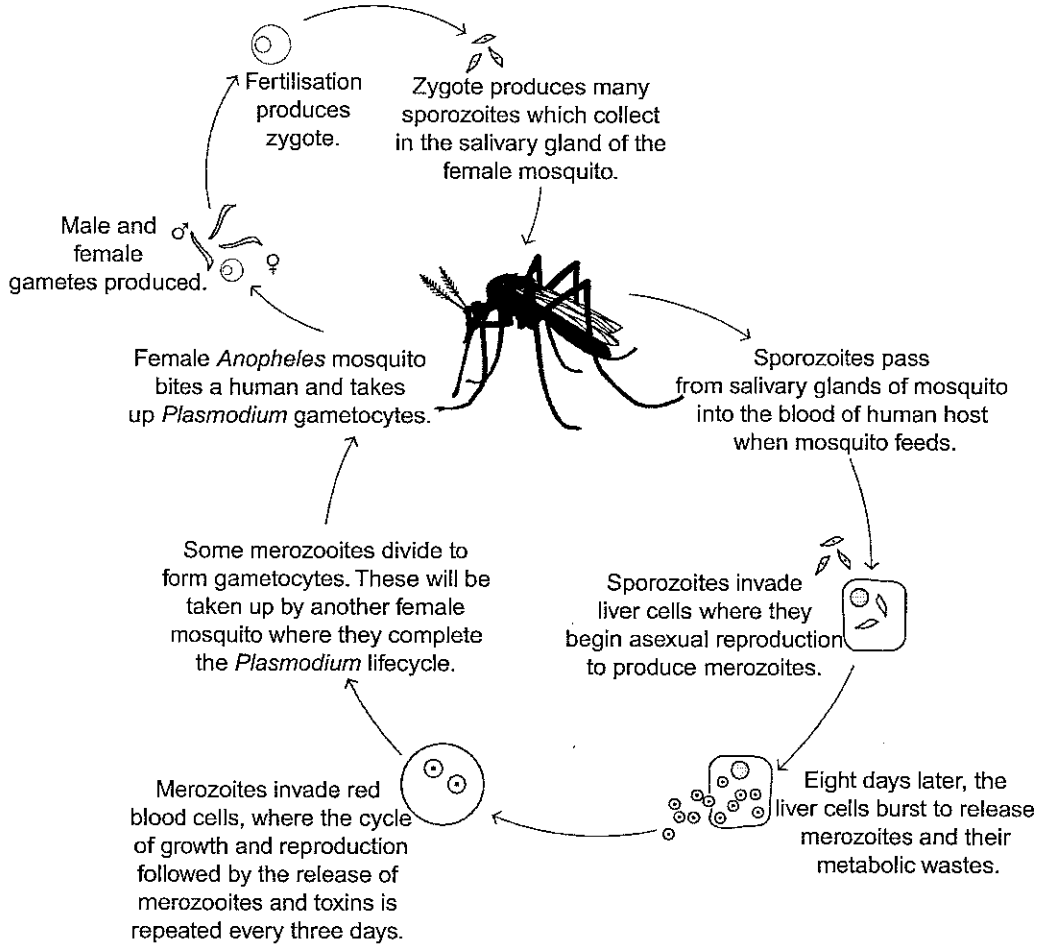
e. Give **three** features of the small intestine which assists in the function of absorption.

3 marks

f. Define peristalsis and state how it is achieved.

2 marks
Total 13 marks

Question 4



The diagram above illustrates the life cycle of the protozoan parasite *plasmodium* which causes the disease malaria in humans.

a. What advantage does the *plasmodium* gain by having part of its lifecycle in the mosquito?

_____

_____

_____

_____

2 marks

b. Name the kingdoms to which the following organisms belong:

i. mosquito

_____

ii. *plasmodium*

_____

1 + 1 = 2 marks

c. By which process do sporozoites reproduce?

_____

1 mark

d. In which organism does sexual reproduction of the *plasmodium* occur?

_____

1 mark

e. Outline a method which could be used to reduce the incidence of malaria in humans.

_____

_____

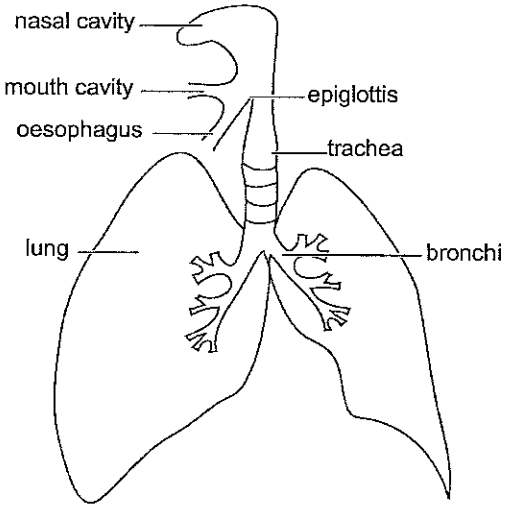
_____

_____

2 marks

Total 8 marks

Question 5



The diagram above is of the mammalian respiratory system.

a. What are **two** functions the nose has in breathing?

_____

_____

_____

_____

2 marks

b. What is the function of the epiglottis?

_____

1 mark

c. The trachea has rings of cartilage and the bronchi have muscular walls.
What advantages do each of these features have?

_____

_____

_____

_____

2 marks

d. The trachea is lined with tiny hair-like processes called cilia. Smoking destroys cilia.
What advantage is gained by the body by the presence of cilia?

_____

1 mark
Total 6 marks

Question 6

Salmonella sp. are a group of bacteria that cause food poisoning. In Melbourne there have been many reported cases related to take-away raw fish and rice. In England many cases have been reported and linked to eggs. In many parts of Europe outbreaks have been linked to fermented meats such as salami.

a. In all cases doctors refer to *Salmonella* regardless of their native tongue.

What advantages are gained by having a universal system of naming and classifying organisms?

_____

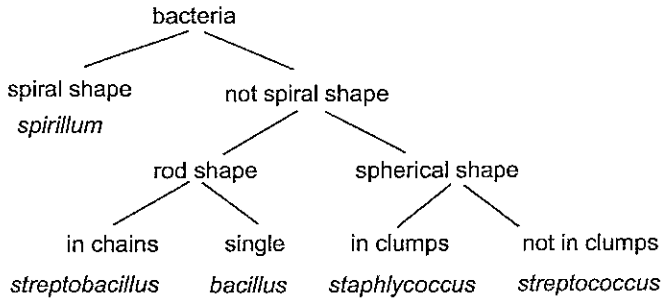
_____

_____

_____

2 marks

b. Key to identifying bacteria



bacteria to be classified: 

Using the key above, classify the bacteria illustrated.

_____

1 mark

Total 3 marks

END OF QUESTION AND ANSWER BOOKLET

