James Ruse Agricultural High School

2007

PRELIMINARY COURSE

TERM 2 (Y11) ASSESSMENT TASK – THEORY EXAMINATION (PATTERNS IN NATURE)

BIOLOGY

General Instructions

- Reading time – 5 minutes
- Working time – 40 minutes
- Write using black or blue pen

- Draw diagrams using pencil
- Write your Student Number on the Part A Answer Sheet and the Part B Question and Answer Book

Total marks for this paper: 37

This paper has two parts, Part A and Part B

Part A
Total marks (5)
- Attempt all questions
- Allow about 8 minutes for this part

Part B
Total marks (32)
- Attempt all questions
- Allow about 32 minutes for this part

PART A

Total marks (5)

There are 5 questions in this part. Attempt all questions.

Each question is worth one mark.

Allow about 5 minutes for this part.

Select the most appropriate answer and use ink to place an X in the corresponding space on your answer sheet.

1. Which list contains organelles that are only visible under an electron microscope?

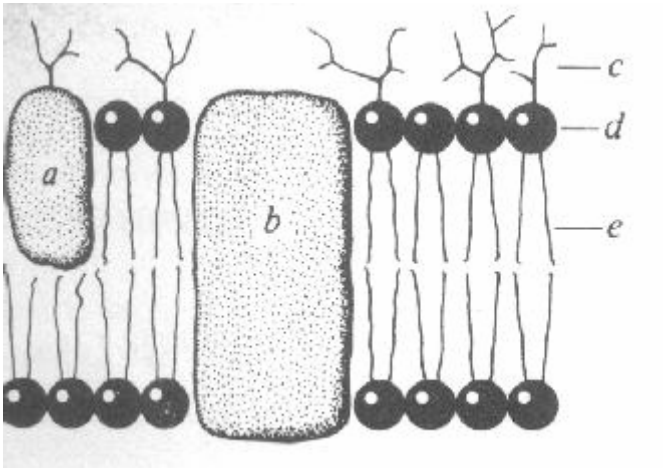
   (A) Cell wall, cell membrane, vacuole
   (B) Lysosome, nucleolus, nucleus
   (C) Nucleus, chloroplast, endoplasmic reticulum
   (D) Mitochondrion, ribosome, Golgi bodies

2. What procedure would you employ to test for the presence of protein in a substance?

   (A) Add a few drops of Benedict's reagent to the substance, gently warm and observe for an orange red colour.
   (B) Add a few drops of iodine reagent to the substance and observe for a blue-black colour.
   (C) Add a few drops of sodium hydroxide and then some copper (II) sulfate to the substance and observe for a violet colour.
   (D) Add a few drops of Sudan III reagent to the substance and observe for a red colour.

Questions continue over →

3. The diagram represents the cross-section of a cell membrane.

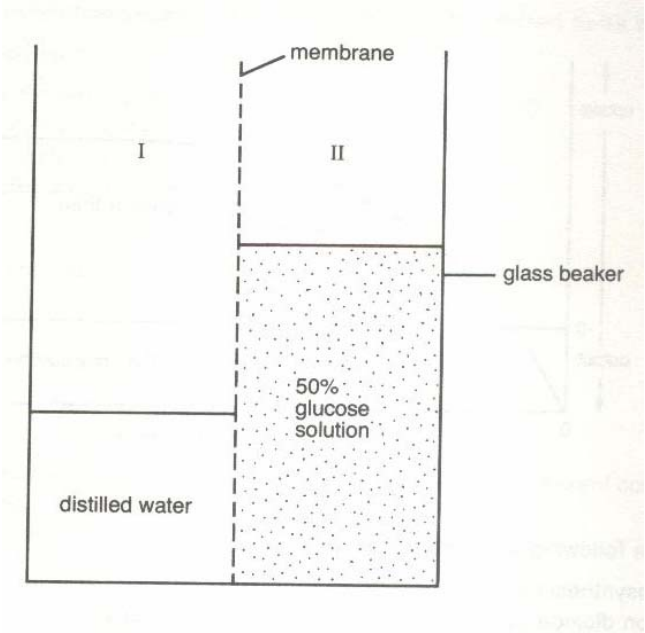


What is represented by ‘b’ and ‘e’?

	b	*e*
(A)	carbohydrate	phospholipid
(B)	lipid	protein
(C)	phosphorous	fatty acid
(D)	protein	fatty acid

Questions continue over →

4. The diagram shows a container with two compartments separated by a semi-permeable membrane that is permeable to both glucose and water. Initially, distilled water is placed in one compartment and a 50% glucose solution in the other compartment as shown in the diagram.

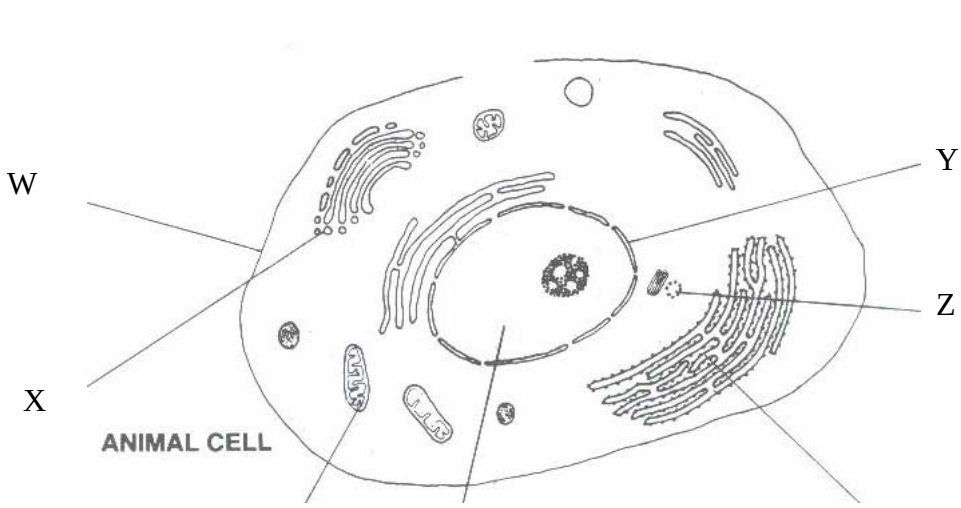


What will happen if the apparatus is left to stand for several days?

(A) Compartment II will contain all the fluid in the container.
(B) Glucose will only be present in compartment II.
(C) There will be a 75% glucose solution in both compartments.
(D) There will be equal fluid levels in both compartments.

Questions continue over →

5. The diagram depicts an animal cell with four organelles labelled ‘W’, ‘X’, ‘Y’ and ‘Z’.



What is the name and function of the organelle labelled ‘X’?

	name	*function*
(A)	Golgi bodies	packaging proteins for transport out of the cell
(B)	endoplasmic reticulum	synthesise proteins and transport materials throughout the cell
(C)	Golgi bodies	conduct cellular respiration
(D)	endoplasmic reticulum	making lipids

Student Number

Part B

There are 7 questions in this part. Attempt all questions.

Marks vary for each question.

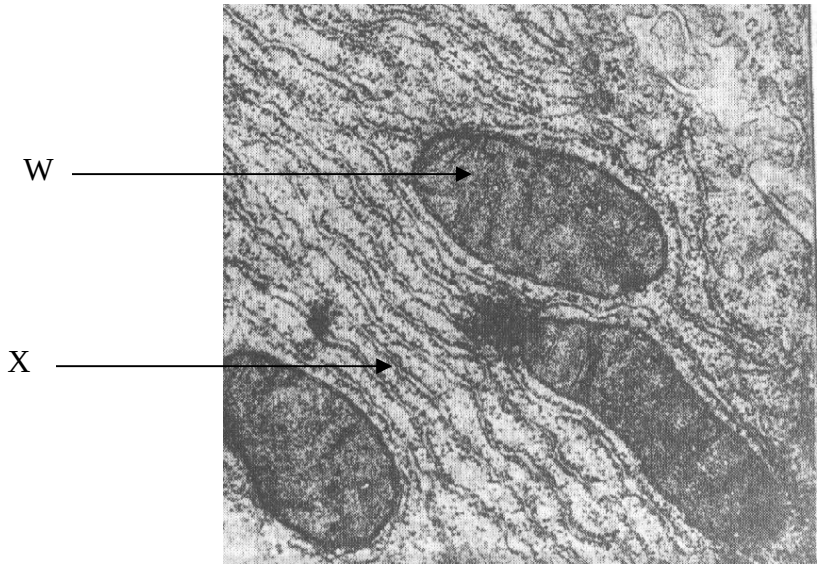
Answer the questions in the spaces provided in this Part B Question and Answer Book.

Write your student number at the top of each page.

Allow about 32 minutes for this part.

Question 1 (4 marks)

This question refers to the electron micrograph, which shows two organelles that belong to a muscle cell (x 30,000).

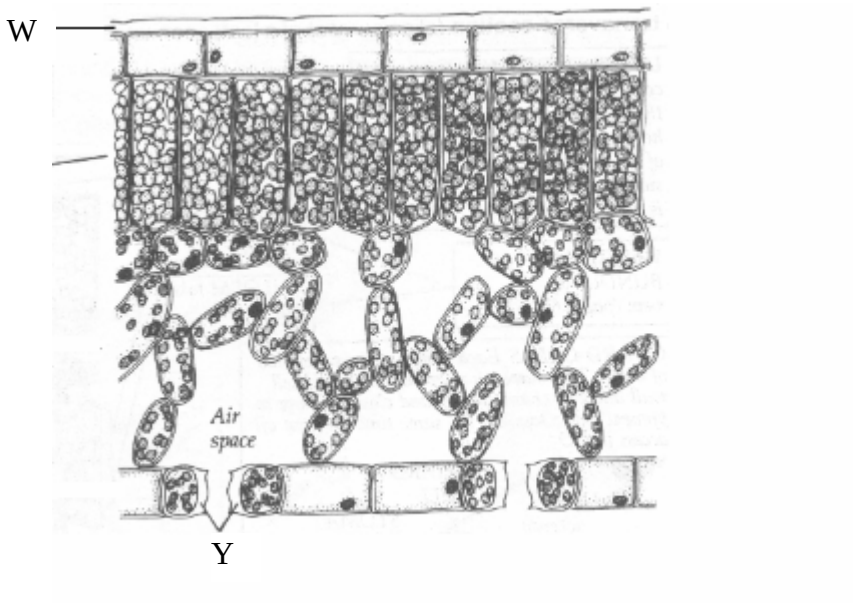


Complete the table.

Structure	Name of structure	Function
W		
X		

Question 2 (7 marks)

This question refers to the diagram which shows the cross section of a leaf.



(a) Write a word equation for photosynthesis. (2 marks)

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(b) Describe where photosynthesis would occur in the leaf. (1 mark)

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(c) Describe the role of 'Y' in photosynthesis. (2 marks)

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(d) Describe the role of 'W' in photosynthesis. (2 marks)

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Questions continue over →

Student Number

Question 3 (4 marks)

Compare the roles of phloem and lenticels in plants. (4 marks)

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Question 4 (4 marks)

(a) Explain the role of transpiration in plants. (2 marks)

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(b) Describe the role of root hair cells in transpiration. (2 marks)

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Questions continue over →

Student Number

Question 5 (3 marks)

Justify the use of radioisotopes in developing an understanding of plant function. (3 marks)

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Question 6 (4 marks)

Compare the digestive systems of a human and a nectar feeding animal such as a possum. (4 marks)

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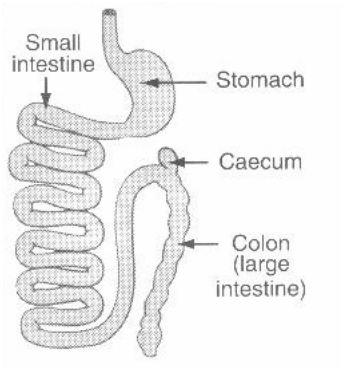
Questions continue over →

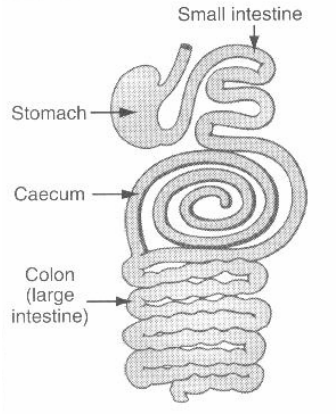
Student Number

Question 7 (6 marks)

This question refers to the diagrams that represent the digestive systems of a dingo (carnivore) and a wombat (herbivore). The diagrams are not necessarily in stated order.



W



X

(a) Identify which diagram represents the digestive system of the dingo (carnivore). Give a reason for your answer. (2 marks)

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(b) Identify which diagram represents the digestive system of the wombat (herbivore). Give a reason for your answer. (2 marks)

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Questions continue over →

Student Number

(c) Complete the table. (2 marks)

Name of structure	Function
teeth	
small intestine	

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End of theory paper

Student Number

Part A Answer Sheet

Total marks (5)

There are 5 questions in this part. Attempt all questions.

Each question is worth one mark.

Allow about 8 minutes for this part.

Write your Student Number at the top of this Part A Answer Sheet.

Select the most appropriate answer and use ink to place an X in the corresponding space on your answer sheet.

	1	2	3	4	5
(A)					
(B)					
(C)					
(D)					