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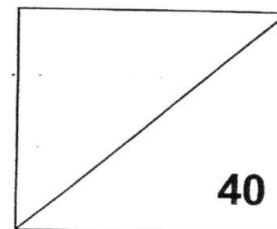
Name _____

Class _____

Reg. No _____



END OF YEAR EXAMINATION 2016
SECONDARY 1 NORMAL ACADEMIC
SCIENCE BIOLOGY
12 OCTOBER 2016
55 MINUTES



Set by:

Mrs Quek Soo Kim

Vetted by:

Mrs Kim Ong

Approved by:

Ms Wee Yee Yun

Parent's signature : _____

This document consists of 9 printed pages.

Instruction to candidates:

Write your name, class and register number on all the work you hand in.
 You may use an HB pencil for any diagrams, graphs, tables or rough working.
 Write in dark blue or black pen.
 Do not use staples, paper clips, highlighters, glue or correction fluid.

There are **nineteen** questions in this paper. Answer **all** questions.

For **Section A**, there are four answers **A**, **B**, **C** and **D**. Choose the one you consider correct and record your choice in soft pencil on the separate Answer Sheet.

For **Sections B** and **C**, all answers should be written in the spaces provided on the question paper.

Any rough working should be done in this question paper.
 The use of an approved scientific calculator is expected, where appropriate.

Section A [15 marks]

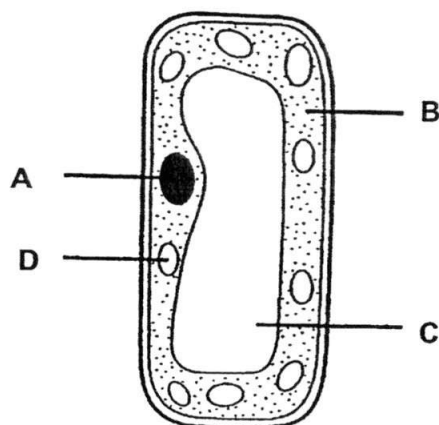
Answer **all** the questions in the OTAS provided.

1 Which part of the plant cell is partially permeable?

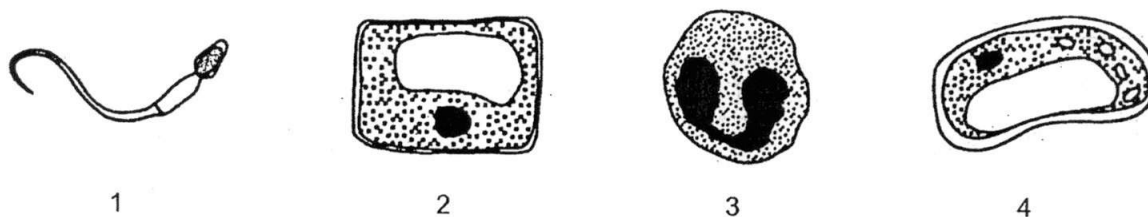
A cell wall**B** cell membrane**C** nucleus**D** chloroplast

- 2 The diagram shows a cell from the leaf of a green plant.

In which part would chromosomes be found?



- 3 The diagram below shows four different cells as seen through a microscope.



Which two cells are plant cells?

- A 1 and 2
B 1 and 3
C 2 and 4
D 3 and 4
- 4 Which row in the table below lists the structures from the simplest to the most complex?

	simplest → most complex			
A	cells	organs	organ systems	tissues
B	cells	tissues	organs	organ systems
C	organ systems	organs	tissues	cells
D	tissues	cells	organs	organ systems

- 5 A dichotomous key classifies organisms by dividing a group into _____.

- A any number of groups each time
B four smaller groups each time
C three smaller groups each time
D two smaller groups each time

[Turn over

- 6 Which of the following statements is correct?
- A Biodiversity is the existence of different human races on earth.
 - B Biodiversity is the existence of different kinds of animals on earth.
 - C Biodiversity is the existence of different kinds of plants on earth.
 - D Biodiversity is the existence of different kinds of animals and plants on earth.
- 7 Which statement would you **not** use when classifying an animal with a backbone?
- A It lives on land.
 - B It is warm- blooded.
 - C It produces its own food.
 - D Its body is covered with feathers.
- 8 Which of the following depicts the correct order for the passage of food through the alimentary canal?
- A mouth → colon → stomach → small intestine → oesophagus
 - B mouth → oesophagus → small intestine → stomach → colon
 - C mouth → oesophagus → stomach → small intestine → colon
 - D mouth → stomach → oesophagus → small intestine → colon
- 9 Digestive enzymes are special types of proteins which _____.
- A speed up the process of digestion
 - B relax the muscles in the alimentary canal
 - C dissolve the nutrients in the food
 - D combine small molecules into big molecules
- 10 A food is known to contain reducing sugar and protein.
When this food is tested for reducing sugar and protein, what colours would a student observe?

	reducing sugar test	protein test
A	blue	blue
B	blue	violet
C	brick red	blue
D	brick red	violet

- 11 The following substances can be found in the bloodstream of the small intestine except _____.

A amino acids
 B glucose
 C fatty acids
 D starch

- 12 Saliva contains an enzyme that digests _____.

A fats
 B protein
 C sugars
 D starch

- 13 Which enzyme will digest peanut oil in the alimentary canal and what are the products formed?

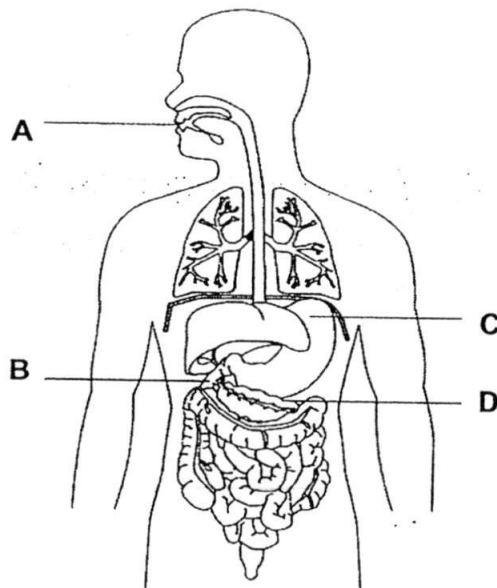
	enzyme	products
A	lipase	amino acids
B	lipase	fatty acids and glycerol
C	protease	amino acids
D	protease	fatty acids and glycerol

- 14 What is the function of the gall bladder?

A absorption of fat
 B digestion of fat
 C production of bile
 D storage of bile

- 15 The human digestive system is shown below.

Where does the digestion of starch begin?



Section B [15 marks]

Answer **all** the questions in the spaces provided.

- 16** Fig. 16.1 shows three human cheek cells.

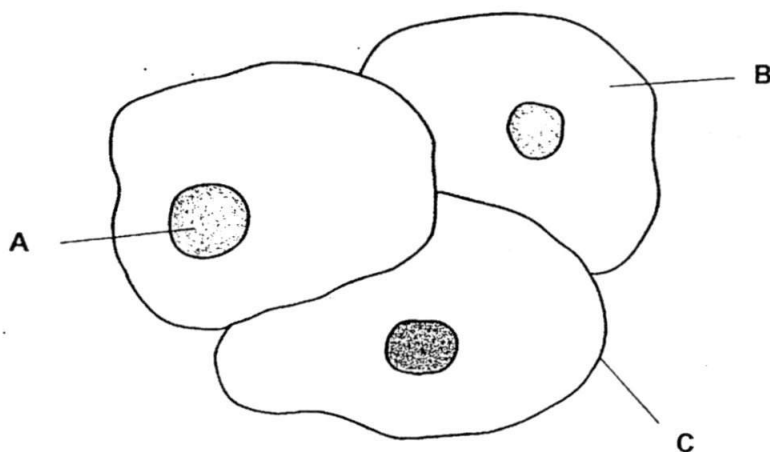


Fig. 16.1

- (a)** Name the structures labelled **A**, **B** and **C** in Fig.16.1.

A -

C -

B -

[3]

- (b)** State two features that show these are animal cell.

1.

2.

[2]

- (c)** State the function of **C**.

.....

[1]

[Turn over

- 17 Fig. 17.1 shows four fruits commonly found in Singapore. Mango and tomato are edible fruits.

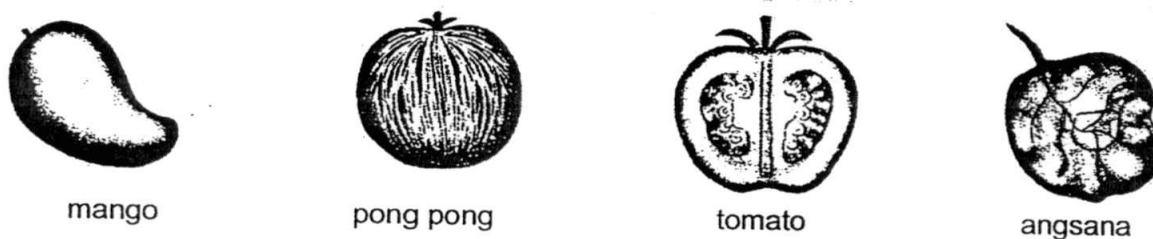


Fig. 17.1

Fig. 17.2 is the dichotomous key that shows how the four fruits can be classified.

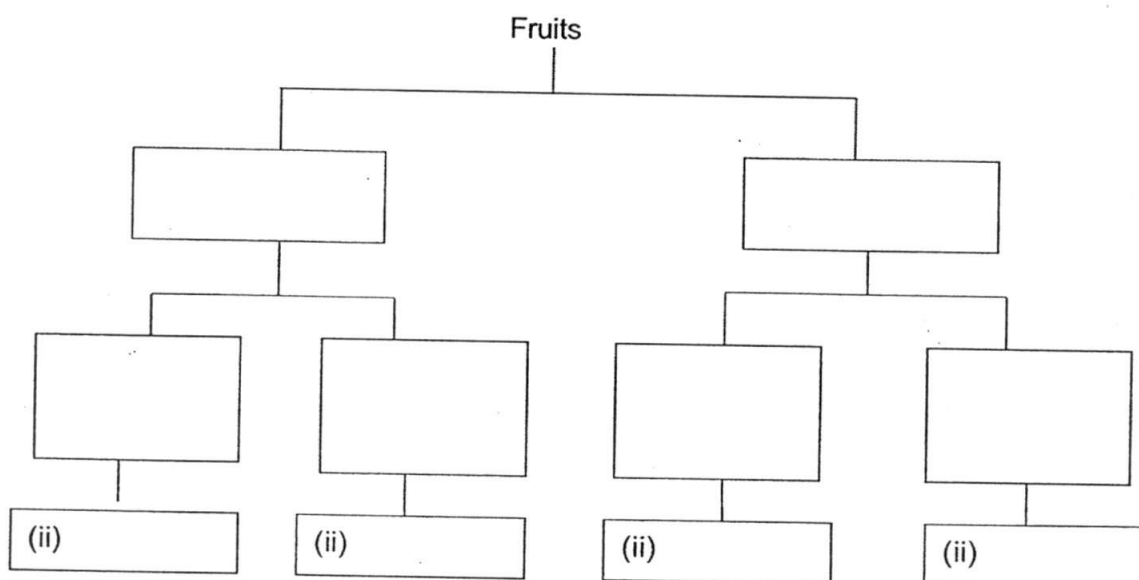


Fig. 17.2

[3]

- (i) Fill in the boxes in Fig. 17.2 with the help of the following keys :

-edible or inedible
 -one seed or many seeds
 -has fibrous husk or has wing-like structure

- (ii) Hence, identify the fruits by filling in the boxes in Fig. 17.2.

[2]

- 18 Fig. 18.1 shows a comic strip on the digestion of food.

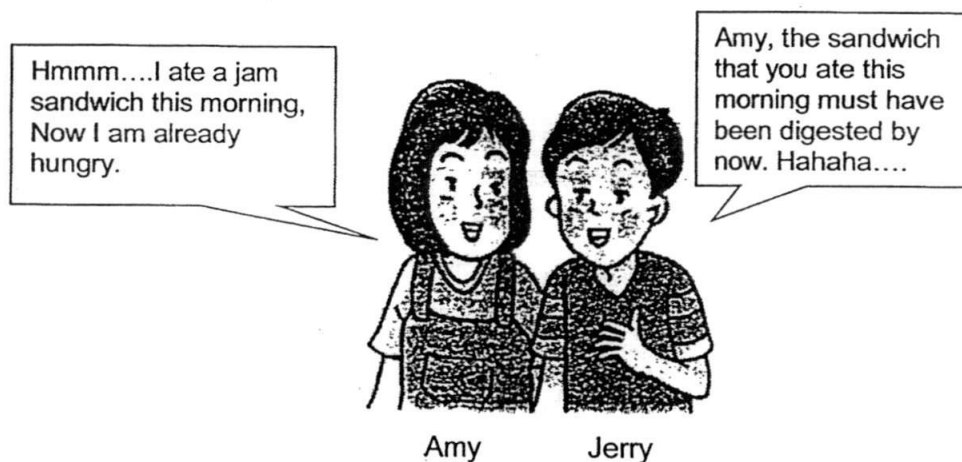


Fig. 18.1

- (a) What does Jerry mean by 'sandwich must have been digested'?

.....

[1]

- (b) In an experiment, saliva is mixed with a small piece of bread. Another small piece of bread was mixed with water as the control set-up. After 30 minutes, a few drops of iodine were added to both set ups to test for the presence of starch. Change in colour of iodine was observed.

- (i) What is the colour of iodine for the set-up using saliva?

.....

[1]

- (ii) Explain your answer to (a)(i).

.....

[2]

[Turn over

Section C [10 marks]

Answer **all** the questions in the spaces provided.

- 19 Fig.19.1 shows part of a digestive system.

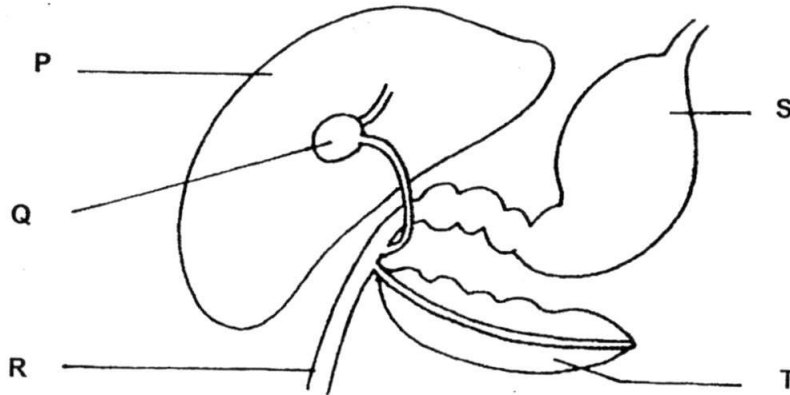


Fig. 19.1

- (a) Name the structures labelled P to T.

P -

S -

Q -

T -

R -

[3]

- (b) (i) Name the nutrient digested in S.

..... [1]

- (ii) S produces hydrochloric acid.
What is the function of hydrochloric acid?

..... [1]

- (c) (i) Name an enzyme produced by structure T.

..... [1]

- (ii) Hence, write a word equation to show the action of this enzyme you have named in part (c)(i).

..... [1]

[Turn over]

- (d) Fig 19.2 shows the appearance of droplet of fat in the human alimentary canal.

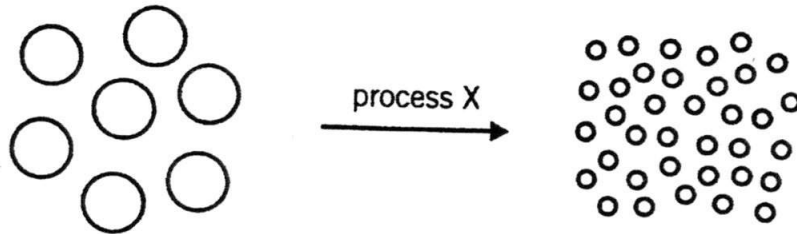


Fig. 19.2

- (i) Process X is known as emulsification.
Name the substance that carries out emulsification.
- [1]
- (ii) Using Fig. 19.2, explain how this substance helps in the digestion of fat.
-
-
- [2]

END OF PAPER

1 NA BIO EOY 2016 ANSWER SCHEME

SECTION A: Multiple Choice Questions (15 marks)

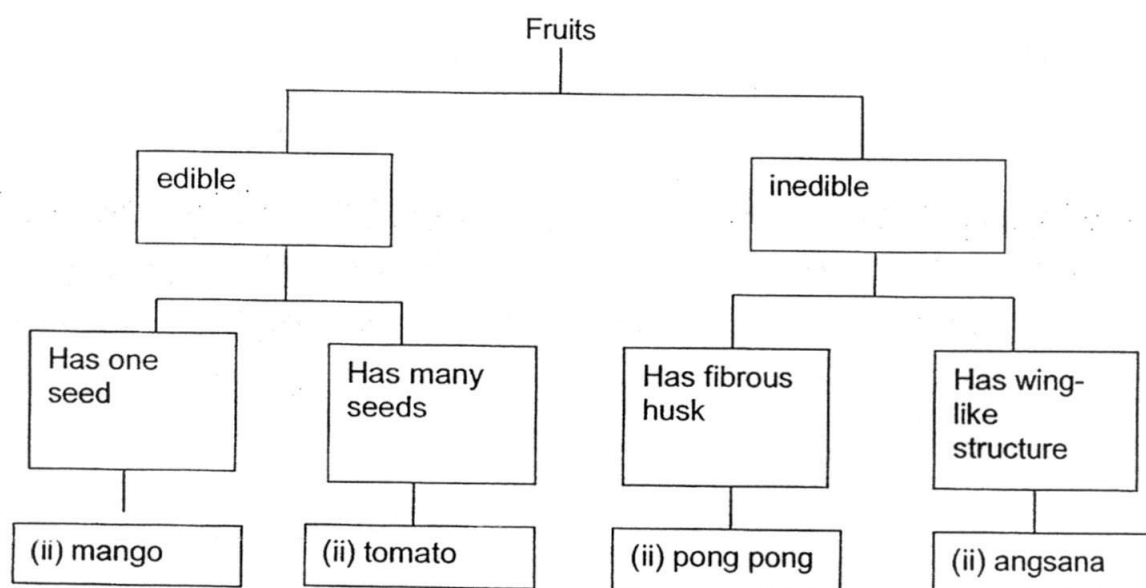
Enter answers in the table below.

1	B	2	A	3	C	4	B	5	D
6	D	7	C	8	C	9	A	10	D
11	D	12	D	13	B	14	D	15	A

SECTION B: Short Answer Questions (15 marks)

- 16 (a) A - nucleus C - cell membrane
B - cytoplasm
- (b) Any 2 answers
Cell wall is absent [1]
Chloroplasts are absent. [1]
There is no large central vacuole [1]
- (c) C controls the movement of substance in and out of the cell. [1]

- 17 (a) i) 2 correct-1m
4 correct-2m
6 correct-3m



- ii) 2 correct- 1m
4 correct- 2m

- 18 (a) The sandwich has been broken down into small soluble molecules [1]
- (b) (i) Yellow brown/ The iodine solution remains brown. [1]
- (ii) Enzyme/Amylase [1] in the saliva digest the starch [1] to maltose. Starch is no longer present.

SECTION C: Long Answer Questions (10 marks)

- 19 (a) P- Liver S- stomach
Q- gall bladder T- pancreas
R- small intestine/duodenum

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

- (b) (i) Protein [1]
- (ii) Hydrochloric acid kills microorganisms/bacteria in the food. [1]

- (c) (i) Amylase/Protease/Lipase [1]

- (ii)
- Starch $\xrightarrow{\text{amylase}}$ Maltose
- Protein $\xrightarrow{\text{protease}}$ amino acid
- fats $\xrightarrow{\text{lipase}}$ fatty acid and glycerol

Any one- 1m (all parts must be correct)

- (d) (i) bile [1]
- (ii) Bile converts large fats substance into small oil droplets. [1]
This increase the surface area to volume ratio [1] so that lipase can digest the fats easily.