Name: .... (   )   Class: ....

ASSUMPTION ENGLISH SCHOOL
PRELIMINARY EXAMINATION 2019

SCIENCE (BIOLOGY)
5077 / 01
5078 / 01

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LEVEL:	Sec 4 Express / 5 Normal (Academic)	**DATE:**	29 August 2019
CLASS:	Sec 4/1, 4/2, 5/1	**DURATION:**	1 hour (for both Science components)

Additional Materials provided: 1 sheet of OAS paper

INSTRUCTIONS TO CANDIDATES
Do not open this booklet until you are told to do so.

Write your NAME, INDEX NUMBER and CLASS at the top of this page and on the OAS paper. **Shade your index number on the OAS paper**. This paper consists of 1 section.

There are 20 questions in this section. Answer **all** questions. For each question, there are four possible answers **A**, **B**, **C** and **D**. **Choose the correct answer and record your choice in soft or 2B pencil on the OAS paper provided. DO NOT fold or bend the OAS paper.**

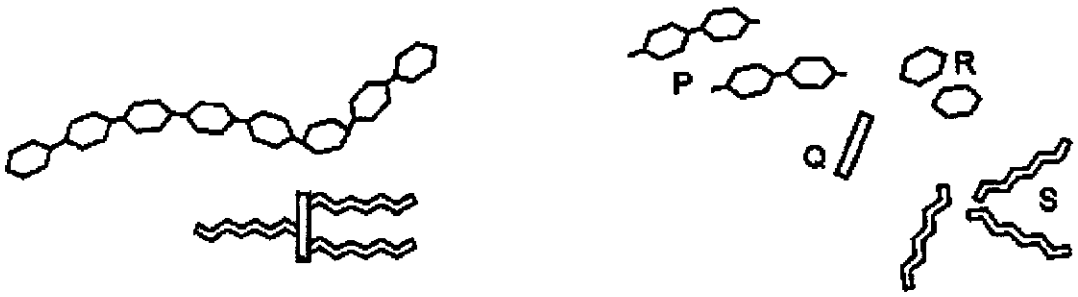
For Examiner's use:	
Paper 1	/ 20
Paper 4	/ 65
Paper 5	/ 15
Total	/ **100**

At the end of the examination, hand in your OAS paper and question booklet separately.

This Question Paper consists of 10 printed pages including this page.
[Turn over

MULTIPLE-CHOICE QUESTIONS (20 marks)
For each question, there are four possible answers **A, B, C** and **D**.
Choose the one you consider correct and record your choice in the OAS paper provided.

1 The diagram shows two food molecules before and after they have been digested by enzymes.



before **after**

Which are the products of carbohydrate digestion?

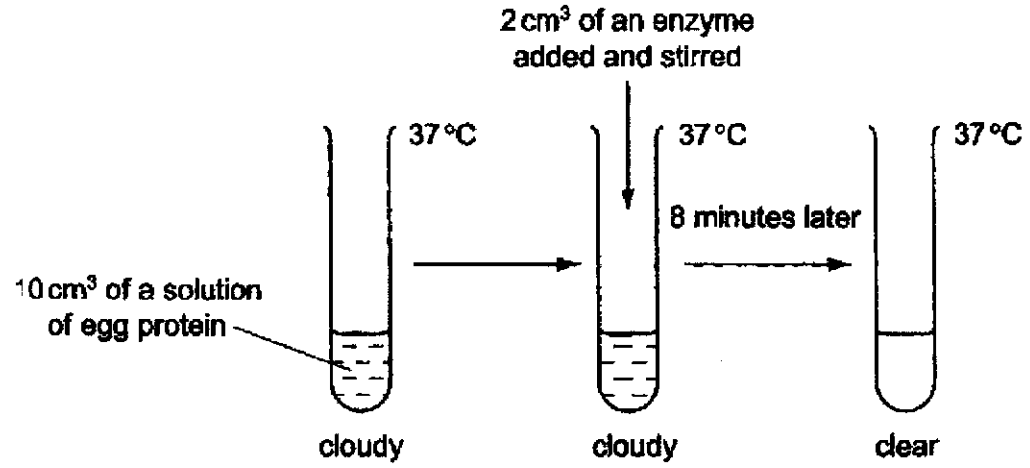
A **P** and **R** **B** **P** and **S**

C **Q** and **R** **D** **Q** and **S**

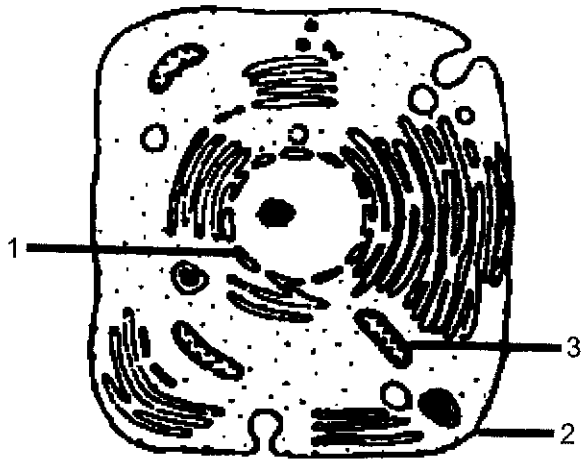
2 Amylase solution is tested with Benedict's solution, biuret solution and iodine solution.

Which colours are obtained?

	Benedict's solution	biuret solution	iodine solution
A	blue	blue	blue-black
B	blue	blue	brown
C	blue	purple	brown
D	red	purple	blue-black



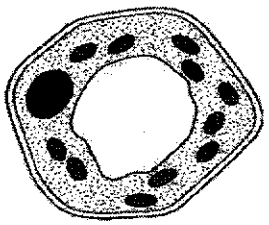
21 The diagram below shows a cell as seen under an electron microscope.



What are the functions in the cell of the numbered parts?

	controls the entry of substances	releases energy from the breakdown of glucose	stores genetic information
A	1	2	3
B	3	2	1
C	3	1	2
D	2	3	1

22 The diagram shows one type of plant cell.



What type of cell is it?

A epidermal cell of a leaf

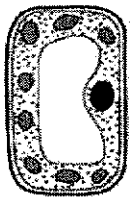
B mesophyll cell of a leaf

C root hair cell

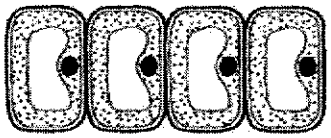
D xylem cell

23 Which diagram shows one organ only?

A

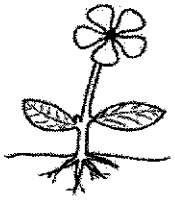


B

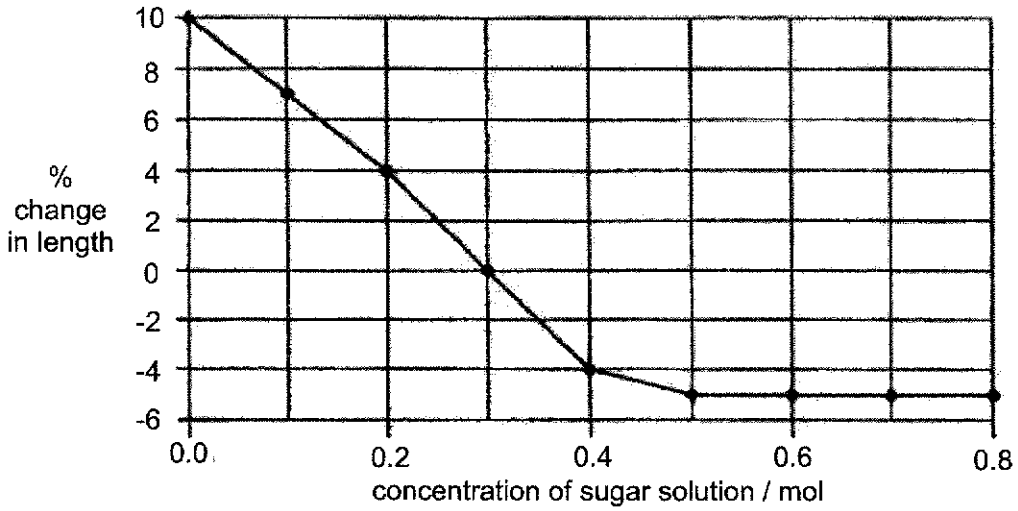


C

D



24 Elongated strips of cucumber tissue were placed in different concentrations of a sugar solution. The graph shows the percentage change in lengths of the strips.



Which solution has the same water potential as the cucumber tissue?

A 0.0 mol

B 0.2 mol

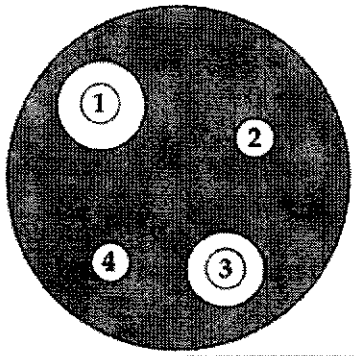
C 0.3 mol

D 0.5 mol

25 A cloudy white jelly was prepared by mixing powdered milk-protein and molten agar jelly. This mixture was poured into a Petri dish and allowed to cool and set. Then four small cavities were made and the following liquids were placed in them as follows:

1 gastric juice
2 saliva
3 biological detergent
4 water

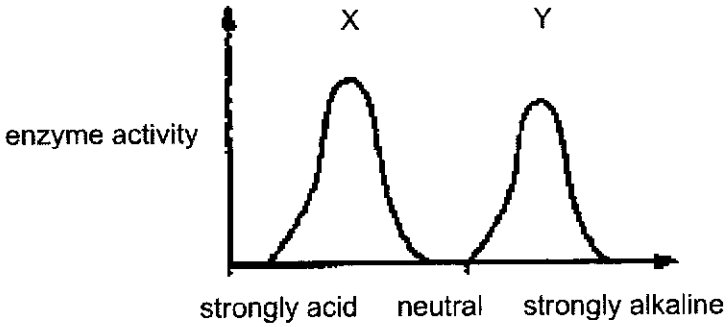
After 24 hours at room temperature, clear zones were found around 1 and 3.



What type of enzyme is found in cavity 3?

A amylase
B bile salt
C lipase
D protease

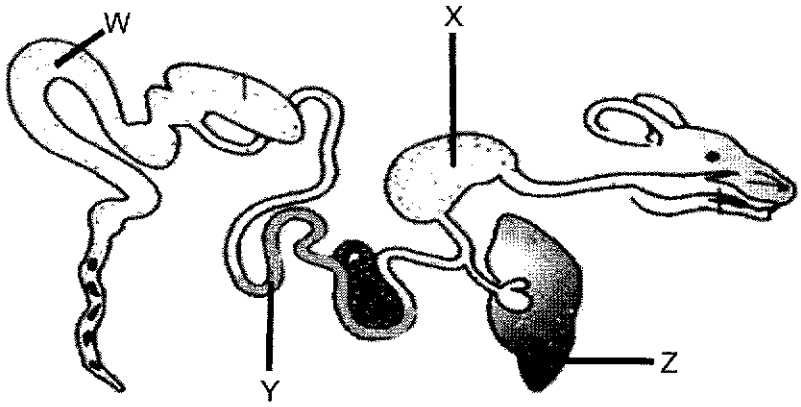
26 The diagram shows the effect of pH on the activity of two enzymes, X and Y, in the alimentary canal.



In which region of the alimentary canal would these enzymes be most active?

	X	Y
A	colon	stomach
B	mouth	duodenum
C	stomach	colon
D	stomach	duodenum

27 The diagram shows an alimentary canal in a mammal.



Which row indicates the processes occurring at organs W, X, Y and Z correctly?

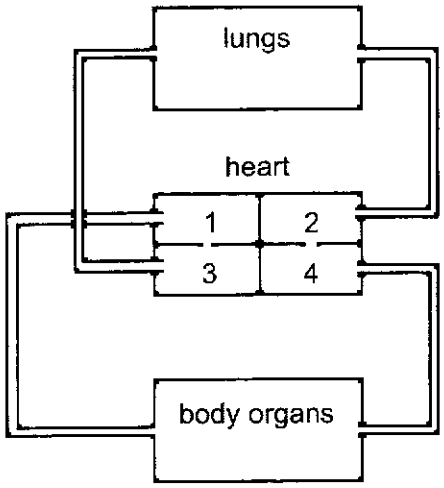
	W	X	Y	Z
A	absorption of nutrients	peristalsis	absorption of water	stores bile
B	absorption of nutrients	secretes pepsin	produces amylase	deamination of amino acids
C	absorption of water	peristalsis	absorption of nutrients	deamination of amino acids
D	absorption of water	secretes pepsin	produces amylase	stores bile

28 Oil is digested into fatty acids by the enzyme lipase.

According to the "lock and key" hypothesis, which is the "lock" and which is the "key"?

	lock	key
A	fatty acids	lipase
B	fatty acids	oil
C	lipase	oil
D	oil	lipase

29 The diagram below shows part of the human circulatory system.



Which sequence shows the path of the blood through the chambers of the heart, as it passes from the heart to the lungs and back to the heart?

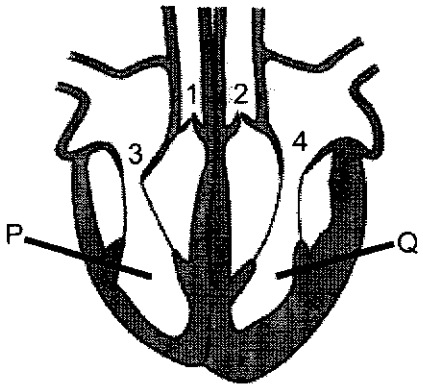
A 1 → 2 → lungs → 3 → 4

B 1 → 3 → lungs → 2 → 4

C 2 → 1 → lungs → 3 → 4

D 2 → 4 → lungs → 1 → 3

30 The diagram shows a section through a human heart.

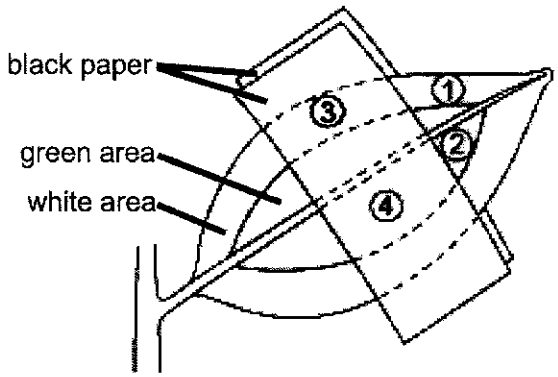


While chambers P and Q are emptying into the pulmonary artery and aorta respectively, which valves are open and which are closed?

	valves 1 and 2	valves 3 and 4
A	closed	closed
B	closed	open
C	open	closed
D	open	open

31 A plant has leaves that are variegated. The plant is destarched and the leaf is partly covered by black paper.

The plant is placed in sunlight for several hours. Four discs are then cut from the leaf in the positions shown and tested for starch.



Which disc(s) contains starch?

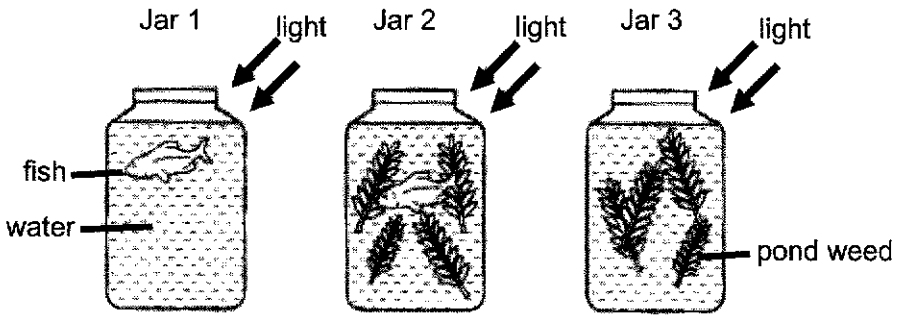
A 1 only

B 2 only

C 1 and 2

D 3 and 4

32 Three sealed jars were set up as shown.



How will the concentration of dissolved carbon dioxide in the water of each jar change?

	Jar 1	Jar 2	Jar 3
A	decreases	increases	no change
B	increases	increases	increases
C	increases	no change	decreases
D	no change	decreases	decreases

33 What are examples of a simple reflex?

1 pulling away one's hand when touching a hot object
2 shedding tears when watching a sad movie
3 blinking when someone waves his hand in front of one's face

A 1 and 2 only
B 1 and 3 only
C 2 and 3 only
D 1, 2 and 3

34 The table below summarises some information about glands.

Which set of information is correct?

	gland	secretions produced	target organ	effect
A	liver	glucagon	intestine	decreases blood glucose levels
B	tear	tear drops	eye	red eye
C	pancreas	insulin	liver	converts excess glucose to glycogen
D	testes	testosterone	skin	deepens the voice

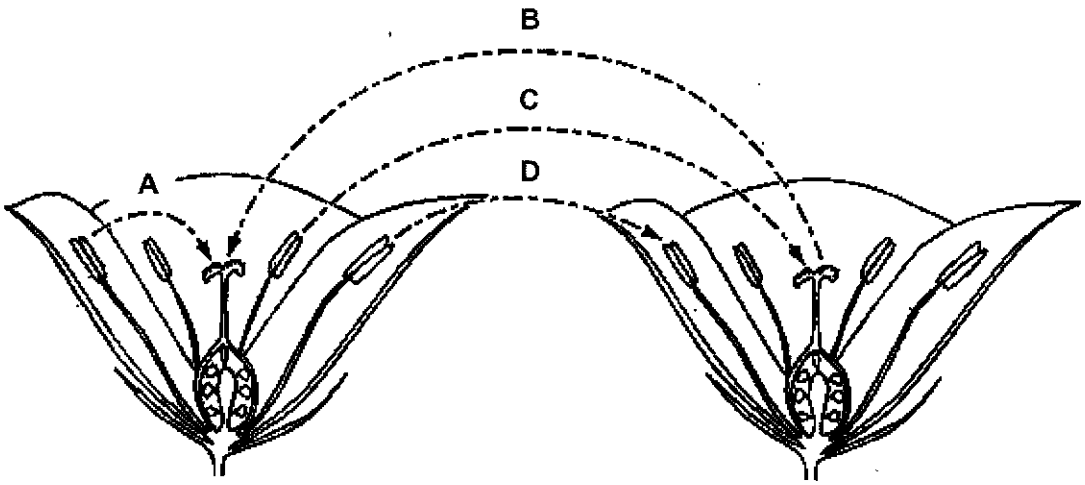
35 A plant has 30 chromosomes in one leaf cell. The plant reproduces both sexually and asexually.

What is the correct number of chromosomes in the gametes and in the cells used for asexual reproduction?

	gametes	cells for asexual reproduction
A	15	15
B	15	30
C	30	15
D	30	30

36 The diagram shows two flowers of the same species.

Which letter represents cross-pollination?



37 Small pieces of root tissues, taken from an oil palm tree and placed in a nutrient medium, each produces a new oil palm tree.

Which row describes the reproductive processes and the genotype of the new trees?

	reproductive process	genotype
A	asexual	different
B	asexual	identical
C	sexual	different
D	sexual	identical

38 The following processes occur during plant sexual reproduction.

1 fertilisation
2 growth of pollen tube
3 pollination
4 seed germination

In which order do these processes take place?

A $1 \rightarrow 4 \rightarrow 2 \rightarrow 3$ **B** $2 \rightarrow 1 \rightarrow 3 \rightarrow 4$

C $4 \rightarrow 3 \rightarrow 2 \rightarrow 1$ **D** $3 \rightarrow 2 \rightarrow 1 \rightarrow 4$

39 After mutation, the gene that codes for haemoglobin has a base sequence of CCT-TTA-GGA-TTC.

What would be the sequence of the complementary base strand of this mutated gene?

A CCU-UUA-GGU-UUC

B GGA-AAT-CCT-AAG

C GGA-AAT-CCT-TTC

D CCT-TTA-GGA-TTC

40 In a plant, the allele R for red leaves is dominant over allele r for yellow leaves. 1000 plants that had the genotype Rr were self-pollinated. 900 offspring with yellow leaves were collected.

How many offspring with red leaves were collected?

A 900

B 1800

C 2700

D 3600

Sec 4E5NA Science (Biology) Prelim Exams 2019
PAPER 1 (20 marks)

21	D
22	B
23	C
24	C

25	D
26	D
27	C
28	C

29	B
30	C
31	B
32	C

33	B
34	C
35	B
36	C

37	B
38	D
39	B
40	C

The end

Class	Register Number	Name

BARTLEY SECONDARY SCHOOL

O LEVEL PRELIMINARY EXAMINATION

SCIENCE (BIOLOGY) **5078/04**

Sec 4 Express / 5 Normal (Academic)

Paper 4 18 Sept 2019

1 hour 15 minutes

Candidates answer on the Question Paper.
No Additional Materials are required.

READ THESE INSTRUCTIONS FIRST

Write your name, register number and class 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 no use staples, paper clips, glue or correction fluid.

The use of an approved scientific calculator is expected, where appropriate.
You may lose marks if you do not show your working or if you do not use appropriate units.

Section A (45 marks)
Answer **all** questions.
Write your answers in the spaces provided on the question paper.

Section B (20 marks)
Answer any **two** questions.
Write your answers in the spaces provided on the question paper.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

For Examiner's Use	
Section A	
Section B	
———	
———	
Total	

This document consists of **16** printed pages.

[Turn over