

Surname	Centre Number	Candidate Number
Other Names		0



GCSE

0243/01

**SCIENCE
FOUNDATION TIER
BIOLOGY 3**

A.M. TUESDAY, 15 May 2012

45 minutes

**Suitable for Modified
Language Candidates**

For Examiner's use only		
Question	Maximum Mark	Mark Awarded
1	7	
2	9	
3	9	
4	5	
5	5	
6	7	
7	5	
8	3	
Total	50	

ADDITIONAL MATERIALS

In addition to this paper you may require a calculator and a ruler.

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen.

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer **all** questions.

Write your answers in the spaces provided in this booklet.

INFORMATION FOR CANDIDATES

The number of marks is given in brackets at the end of each question or part-question.

You are reminded of the necessity for good English and orderly presentation in your answers.

Answer **all** questions.

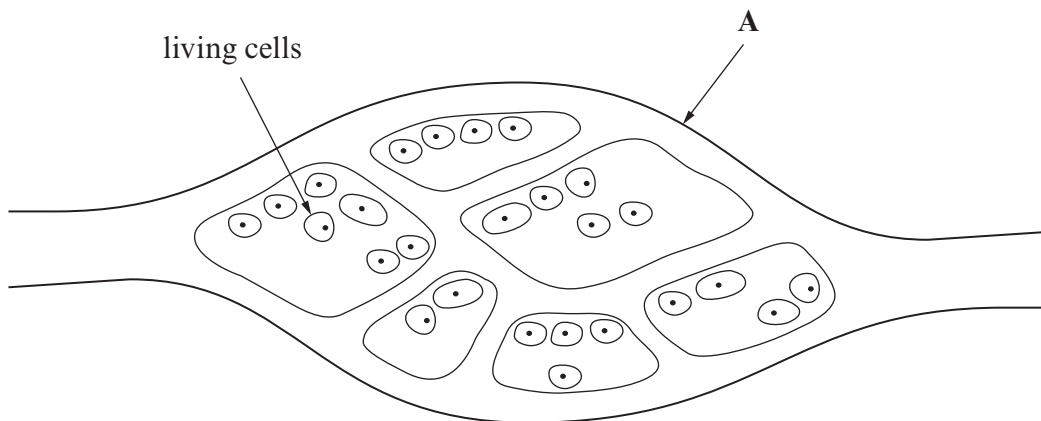
1. (a) Complete the table using some of the following words;

[4]

platelet red blood cell hormone white blood cell plasma

Function	Part of the blood
Carries oxygen
Defends the body against disease
Important in blood clotting
Carries carbon dioxide and other substances

(b) The diagram below shows small blood vessels carrying blood through a body organ.



(i) Name the type of blood vessel shown as **A**.

[1]

.....

(ii) Why is it important that the walls of blood vessel **A** are very thin?

[1]

.....

(c) Name the type of blood vessels which take blood *to* the body organs *from* the heart. [1]

.....

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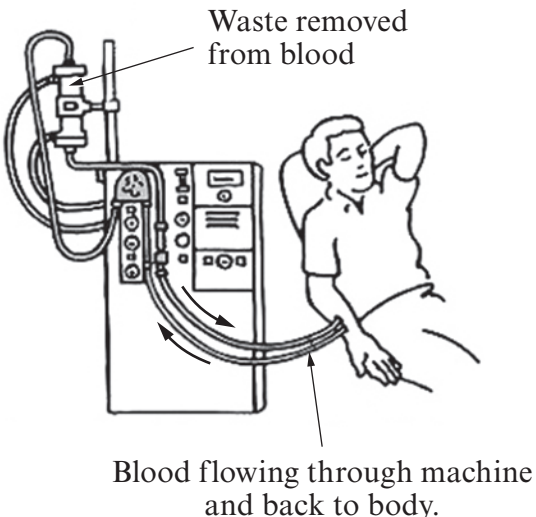
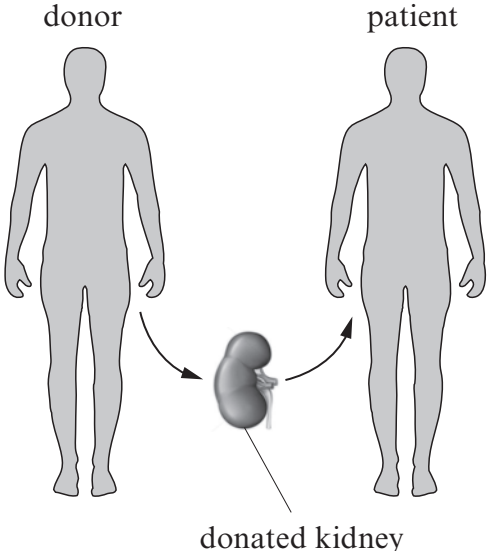
2. (a) Complete the sentences using some of the words below. [3]

urethra bladder urea blood ureter

The carries the waste substance, urine, from the kidney to the where it is stored. The waste leaves the body through the

(b) Read the information below.

Kidney failure can be treated by a kidney dialysis machine or by a kidney transplant. There is a shortage of kidney donors.

Kidney machine	Kidney transplant
	
Weekly treatments in hospital for life.	One operation in hospital.
Strict diet needed.	Can eat normally.
May cause vomiting, low blood pressure.	Transplanted kidney may be rejected.
No drugs needed.	Drugs needed to control rejection.

Using **the information opposite** only:

(i) I. Give **one advantage** of a kidney transplant. [1]

.....
II. Give **one advantage** of a kidney machine. [1]

.....

(ii) State **one** possible health problem of each treatment. [2]

I. Machine

II. Transplant

(c) Suggest **one** way in which the number of kidney transplants could be increased. [1]

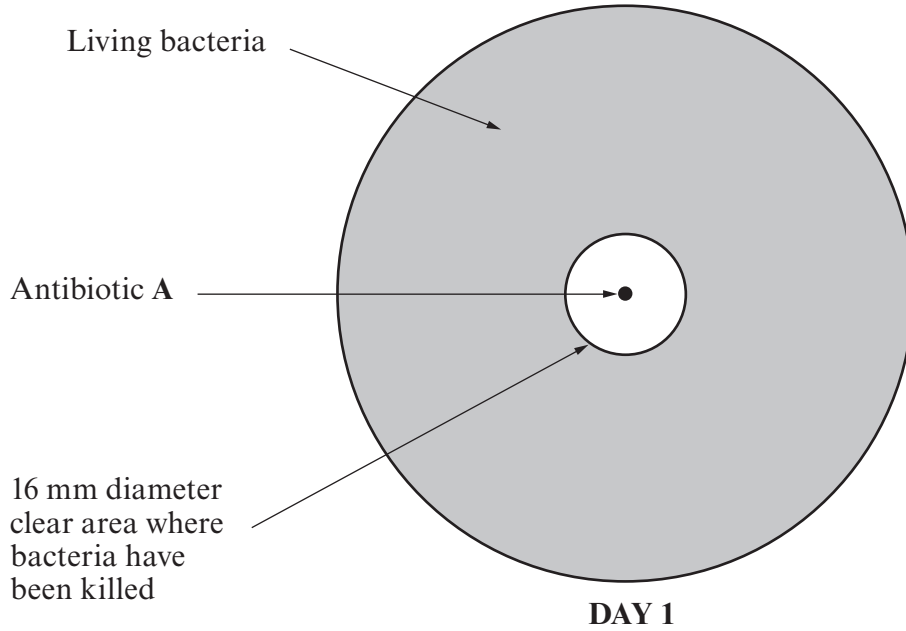
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(d) Name the waste substance which is removed from the blood by the kidneys. [1]

.....

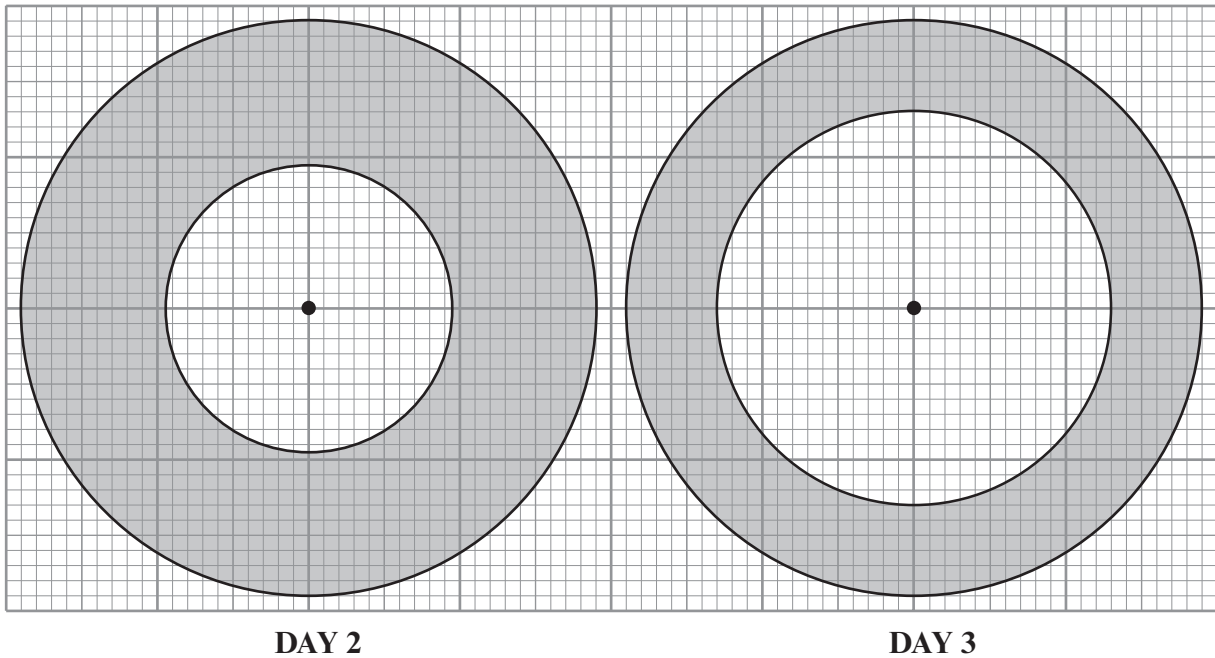
3. A scientist investigated antibiotic A. She grew bacteria on an agar plate and added antibiotic A. The antibiotic spread through the agar killing bacteria and leaving a clear area. The clear area was measured on **Day 1, 2 and 3**.

Results for antibiotic A on day 1



Results for antibiotic A on Days 2 and 3

10 mm

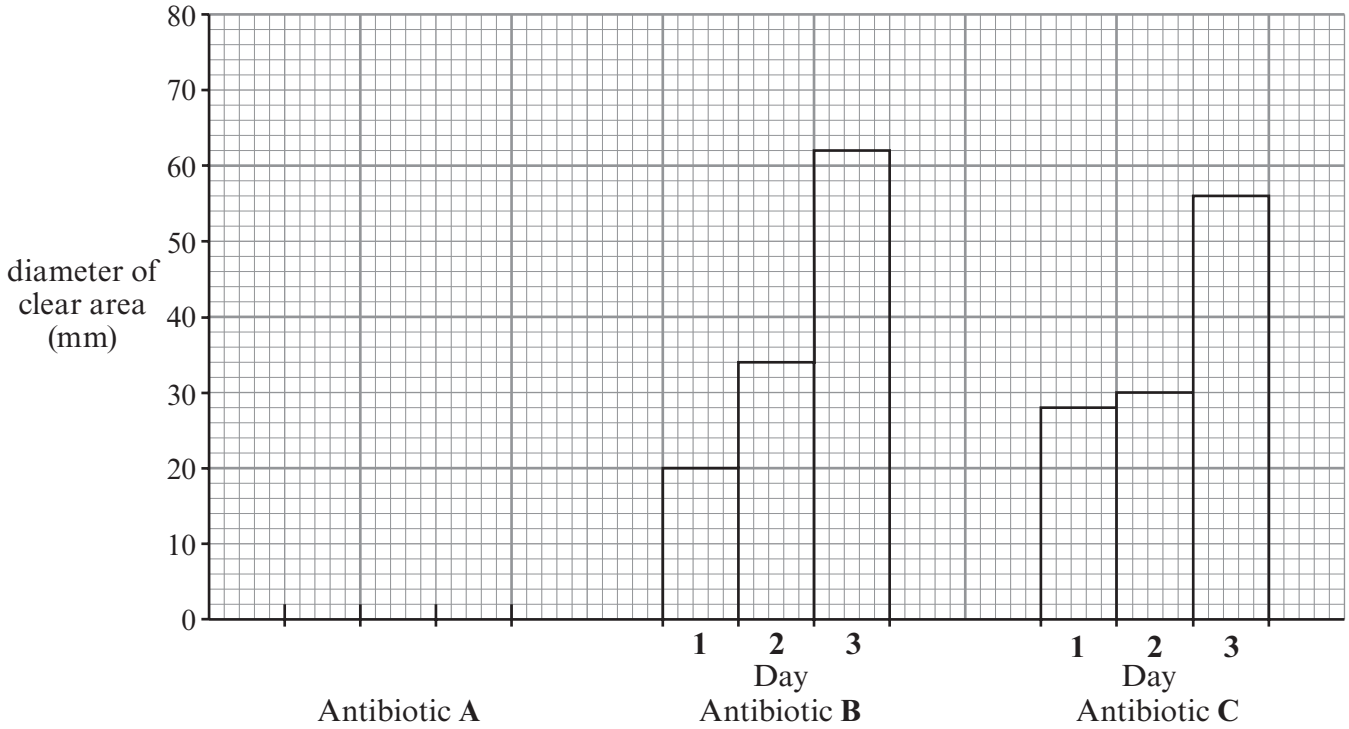


(a) From the results above, complete the table below.

[1]

Antibiotic	Diameter of clear area (mm)		
	Day 1	Day 2	Day 3
A	16	.....	.....

- (b) Use the table opposite to plot the bar chart for antibiotic A. Label your bars. The results for two *other* antibiotics, B and C are already shown on the bar chart. [2]



- (c) Antibiotics B and C were investigated in the same way as antibiotic A. Use the bar chart to answer the following:

(i) Which antibiotic is most effective after 3 days? [1]

(ii) Which antibiotic acted most quickly? Give a reason for your answer. [2]
 Antibiotic
 Reason

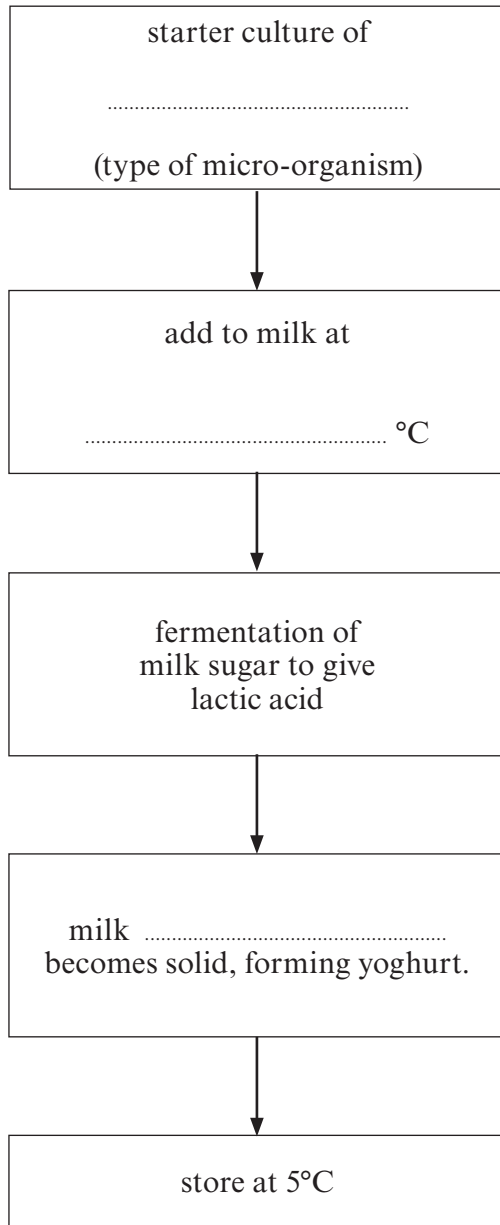
- (d) The agar plates were covered with a lid during the investigation. Why was this necessary? [1]

(e) (i) State why antibiotics cannot be used to treat a disease caused by a virus. [1]

(ii) Give **one** problem caused by the over-use of antibiotics in hospitals. [1]

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4. (a) The flow diagram below shows the steps in making yoghurt using micro-organisms. Complete the flow diagram by writing your answers on the dotted lines. [3]



- (b) Why is it important to store yoghurt at 5°C? [1]

- (c) Give **one** example of a food *other than yoghurt* which is produced using micro-organisms. Name the micro-organism needed. [1]

Food micro-organism

5. (a) Draw lines to join the descriptions to the correct scientific terms. One has been done for you. [3]

Description	Scientific term
evaporation of water from leaves	stomata
small pores in leaves	phloem
structure which carries food materials	transpiration
structure which takes in water from soil	mineral
substance carried in water	root hairs

- (b) Plants obtain minerals from water.

(i) Name **one** mineral which plants need for healthy growth. [1]

.....

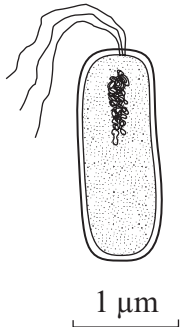
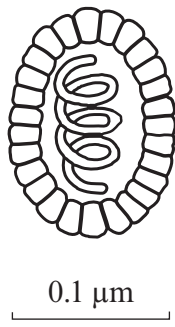
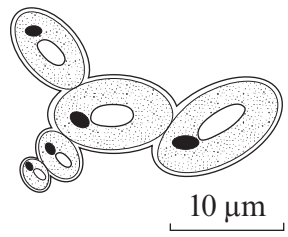
(ii) State **one other** function of water in plants. [1]

.....

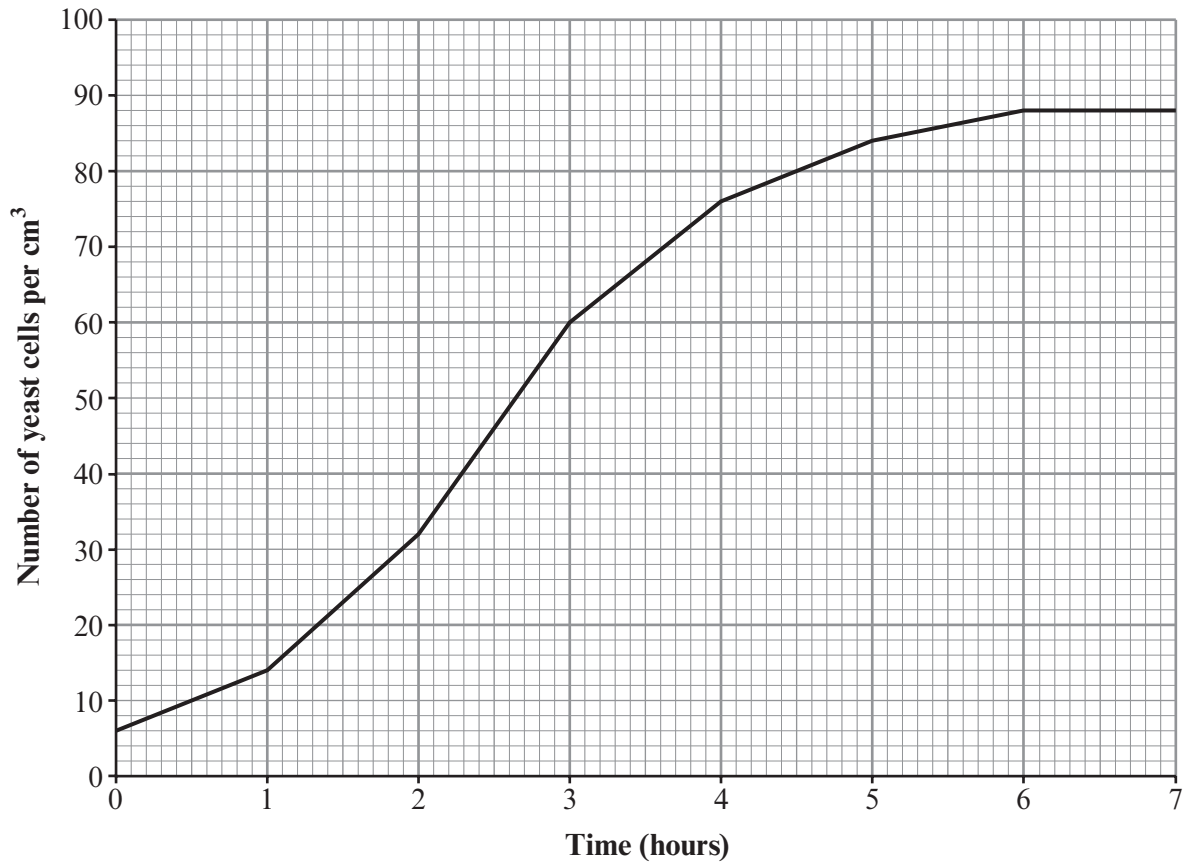
6. The table below shows diagrams of three different types of micro-organisms A, B and C.

(a) Complete the table. Write in the name and features of each type of micro-organism.

[3]

	Micro-organism		
	A	B	C
Drawing of micro-organism			
Name of type of micro-organism	.....	.....	.....
Outer coat	cell wall	.....	cell wall
Reproduction	.....	inside other cells	by budding
Nucleus	no distinct nucleus	no nucleus	.....

(b) The graph below shows the growth of yeast cells over a 7 hour period. The yeast cells were grown in a sugar solution and kept at 35°C throughout the experiment. At the end of each hour 1 cm³ of test solution was extracted (taken out) and the number of yeast cells were counted using a microscope.



(i) Between which times was the yeast growing at its fastest rate? [1]
Circle the correct answer.

0 - 1 hours

2 - 3 hours

5 - 6 hours

(ii) Suggest **one** reason why the growth of yeast cells slows down. [1]

.....

.....

(iii) Why was the temperature kept at 35°C? [1]

.....

(c) State **one** use of yeast in the food industry. [1]

.....

7. Biological washing powders contain enzymes. A student carried out an investigation using both biological and non-biological washing powders.

Four white T-shirts were stained with egg yolk which is mainly fat. Each of the T-shirts were treated as follows:

A

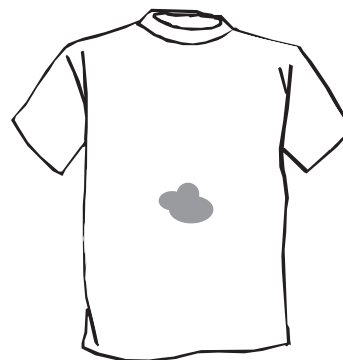
Wash with biological
washing powder at 35°C

B

Wash with biological
washing powder at 60°C

C

Wash with non-biological
washing powder at 35°C

D

Wash with non-biological
washing powder at 60°C

After the wash the percentage of stain remaining on each of the T-shirts is shown in the table below:

T-shirt	Percentage of stain remaining (%)
A	0
B	68
C	79
D	0

(a) State **two** factors, which should be kept constant in this investigation. Do not use time. [2]

(i)

(ii)

(b) From this investigation, what conclusion can be drawn about the effectiveness of **biological** washing powders? [1]

.....
.....

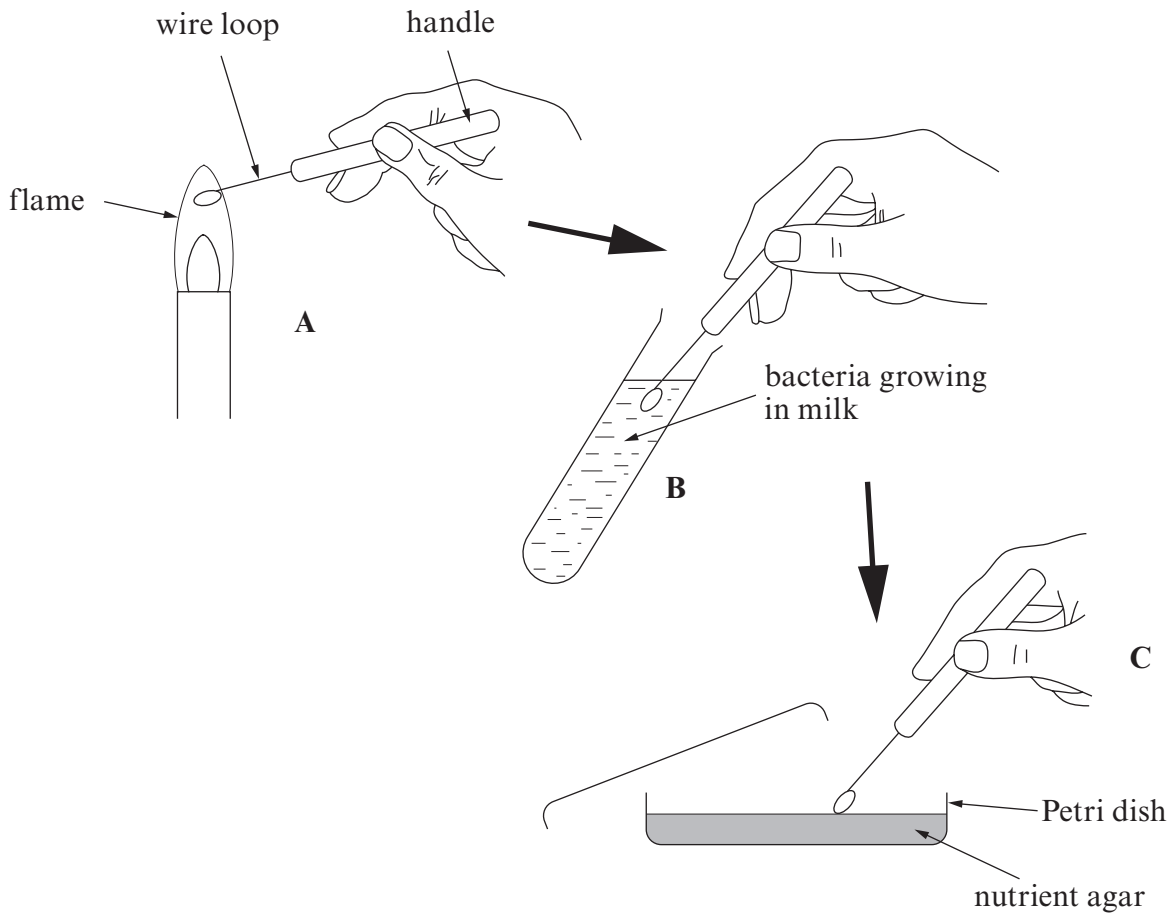
(c) Give **one** advantage of using biological washing powder over a non-biological one. [1]

.....
.....

(d) The enzyme found in the **biological** washing powder, digested the egg yolk. Which type of enzyme is this? [1]

.....

8. The diagrams below show some of the steps used when growing bacteria in a laboratory.



(a) Why is the wire loop placed in the flame? [1]

.....

(b) For safety reasons, what must happen to the Petri dish immediately after the lid is replaced in stage C? Explain why this is done. [2]

.....

**THERE ARE NO MORE QUESTIONS
 IN THIS EXAMINATION.**