Mock Examination2008/7

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

BIOLOGY

Paper 3

0572/03

Additional Material: Answer paper

1 hour 15 minutes

Read the following carefully before you start.

Write your Centre number, candidate number and name in the spaces provided at the top of this page.
DO **NOT** WRITE IN ANY BARCODES.

Section A

Answer **all** questions.

Write your answers in the spaces provided on the question paper.

Section B

Answer **both** questions.

Write your answers on the separate answer paper provided.

Write your centre number, candidate number and name on each sheet of answer paper you use.

At the end of the examination fasten all sheets of answer paper to this question paper using the string provided.

Do not use staples, paper clips, highlighters, glue or correction fluid.

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

You are advised to spend no longer than 40 minutes on Section A.

ST JOSEPH'S COLLEGE

2008

For Examiner's Use	
Section A	
Section B	
5	
6	
Total	

Section A

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

1 Fig. 1.1 shows stages 1 to 4 in the reproductive cycle of a virus. (*diagram not drawn to scale*)

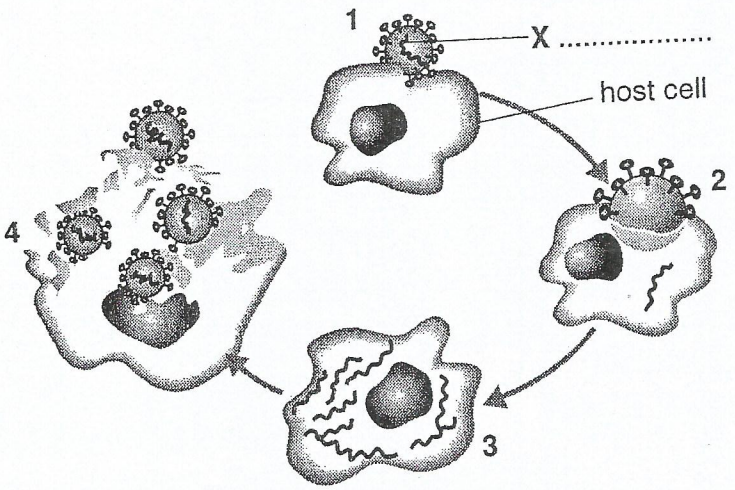


Fig. 1.1

(a) Label structure **X** shown inside the virus. [1]

(b) Complete Table 1.1 by matching each statement with the number of the corresponding stage in Fig. 1.1.

Table 1.1

statement	*number of corresponding stage*
viral nucleic material replicated	
virus damages host cell as new viral particles are released	
virus injects genetic material into host cell	
virus attaches to host cell	

[3]

(c) Describe how the human body develops immunity after an infection.

.....

.....

.....

.....

.....

.....[4]

(d) Figure 1.2 shows changes in the number of lymphocytes in a person infected with HIV.

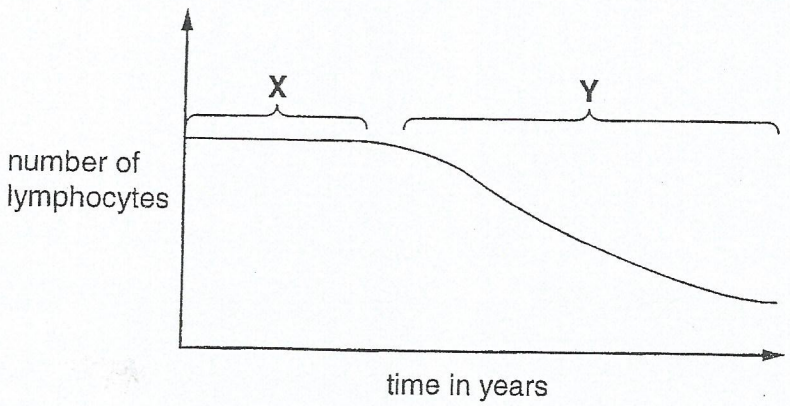


Fig. 1.2

Suggest an explanation for the number of lymphocytes during periods **X** and **Y**.

Period **X** .....

.....

.....

Period **Y** .....

.....

.....[4]

[Total: 12]

2 Figure 2.1 shows the amount of bean seeds harvested from fields where varying amounts of a nitrogen-containing fertiliser had been applied. Bean plants use nitrogen for making proteins.

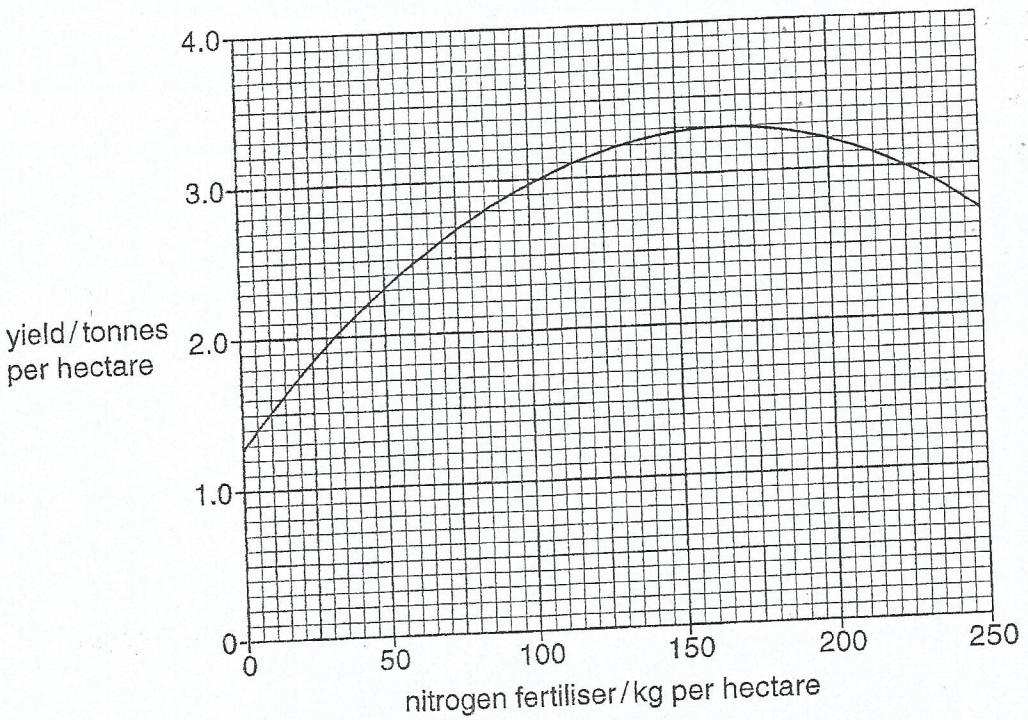


Fig. 2.1

(a) (i) Describe the effects of the fertiliser on the yield of beans.

.....

.....

.....[2]

(ii) Suggest an explanation for your answer in (i).

.....

.....

.....

.....[3]

(b) State **two** signs of nitrogen deficiency in plants.

.....

.....[2]

(c) Figure 2.2 shows a plant cell.

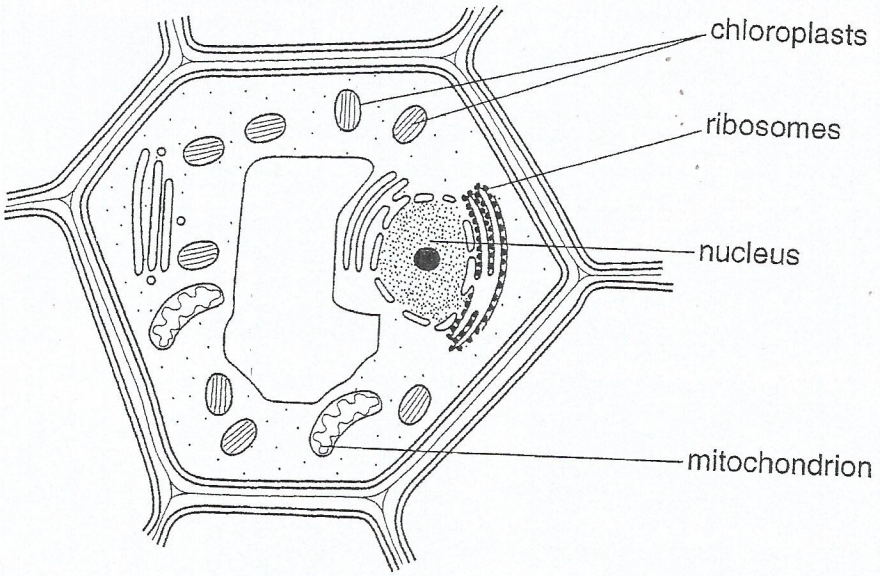


Fig. 2.2

(i) With reference to the labelled structures, describe how the cell in **Fig. 2.2** is involved in the assimilation of the nitrogen-containing fertilizers in protein synthesis.

chloroplasts .....

.....

ribosomes .....

.....

nucleus .....

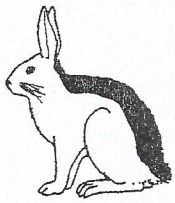
.....

mitochondrion .....

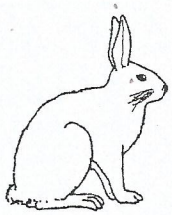
.....[4]

[Total: 11]

3 Figure 3.1 shows rabbits **A** and **B** which were used in a breeding experiment. Rabbit **A** was fed a balanced diet while Rabbit **B** was fed a diet deficient in iron. After several weeks it was found that Rabbit **A** had normal active behaviour and rabbit **B** appeared tired and showed little movement.



Rabbit **A** (black patched)



Rabbit **B** (wholly white)

Fig. 3.1

(a) Explain why rabbit **B** showed the symptoms observed.

.....

.....

.....

.....[4]

(b) Explain why the symptoms observed in the rabbit cannot be passed onto its offspring.

.....

.....[1]

(c) The coat colour of rabbits is determined by two alleles, R and r. Allele R gives white coat and is dominant to allele r, which gives black patch. With the aid of a genetic diagram, describe how you could find out the genotype of a wholly white rabbit.

[5]

[Total: 10]

For Examiner's Use

4 Table 4.1 shows examples of organisms found in clean river water and in water polluted by untreated sewage.

Table 4.1

clean water	*polluted water*
Mayfly	Sludge worm
Stone fly	Rat tailed maggot

Equal samples of water from rivers **X**, **Y** and **Z** were collected and analysed for the presence of the above organisms. The results are shown in Table 4.2.

Table 4.2

river	*number of organisms*			
	mayfly	*stone fly*	*sludge worm*	*rat-tailed maggot*
X	0	0	15	30
Y	1	3	6	8
Z	20	40	1	0

(a) Which river was most polluted?

.....

[1]

(b) Suggest an explanation for the lower number of clean water organisms in river **Y** than in river **Z**.

.....

.....

.....[2]

(c) Describe the effects of discharging untreated sewage into river water.

.....

.....

.....

.....

.....[4]

[Total: 7]

[Turn over

Section B

Answer **both** questions.

Write your answers on the separate answer paper provided.

5 Figure 5.1 is a diagram of a dicotyledonous plant showing organs **W**, **X**, **Y** and **Z**.

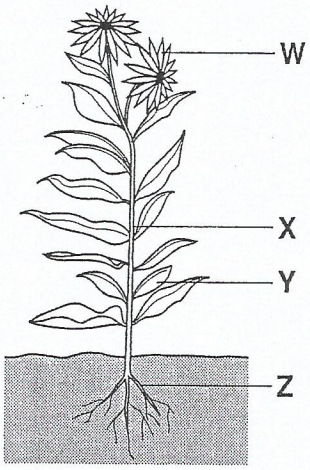


Fig. 5.1

(a) Identify organs **X**, **Y** and **Z** and describe their role in water uptake and transport through the plant. [9]

(b) **(i)** State **two** uses of water in plants. [2]

(ii) What would happen to organ **Y** if the plant lost water faster than it was gaining it? [1]

(c) The speed of air blowing on the plant in Fig. 5.1 increases. Explain how this change will affect the rate of water transport by the plant. [3]

[Total: 15]

6 **(a)** Explain what is meant by drug:

(i) tolerance,

(ii) addiction and

(iii) withdrawal symptoms. [4]

(b) With reference to tar and carbon monoxide, describe the harmful effects of cigarette smoking. [5]

(c) Explain why an overdose of alcohol may lead to death. [3]

(d) Suggest **three** ways in which the abuse of marijuana may be controlled. [3]

[Total: 15]