Practice Question Set For GCSE
Subject : Biology
Paper-1 Topic: B3 Infection And Response

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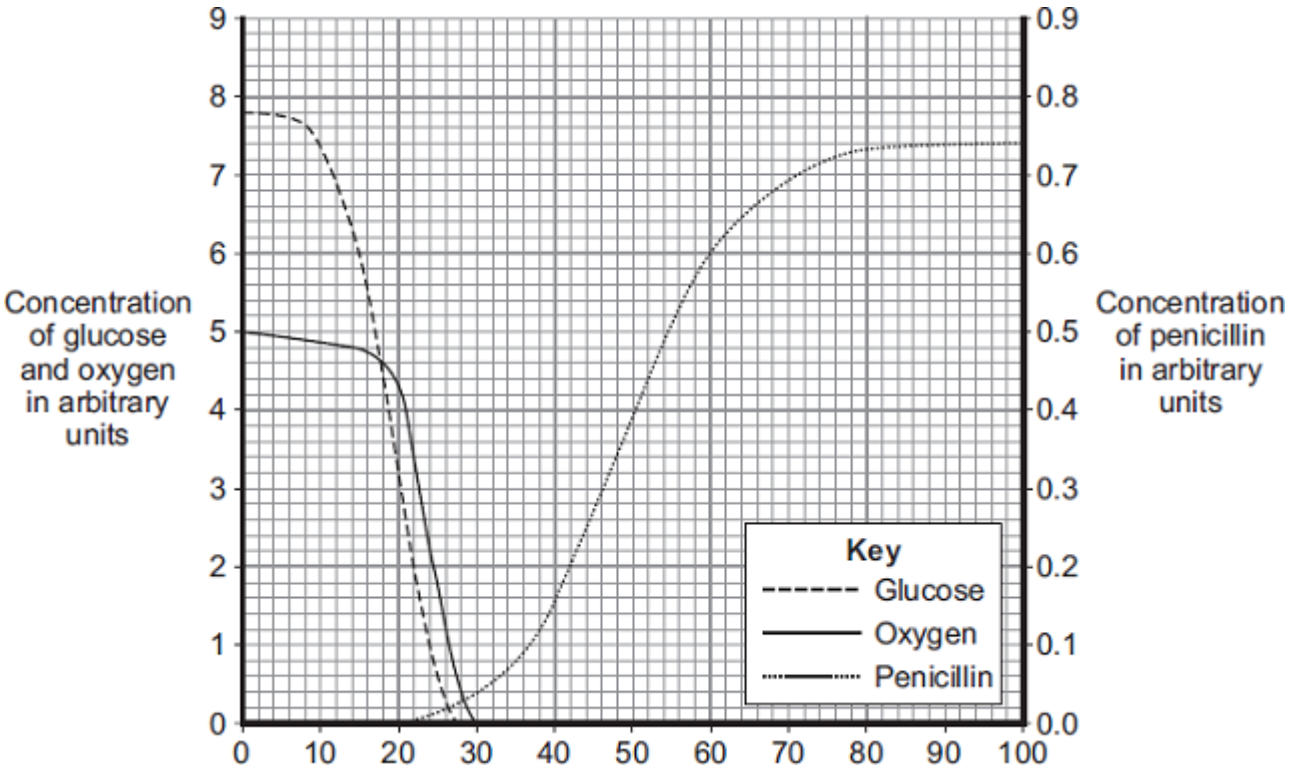
Name of the Student:_____
Max. Marks : 23 Marks **Time : 23 Minutes**

Q1.

The mould *Penicillium* can be grown in a fermenter. *Penicillium* produces the antibiotic penicillin.

The graph shows changes that occurred in a fermenter during the production of penicillin.



(a) During which time period was penicillin produced most quickly?

Draw a ring around **one** answer.

0 – 20 hours **40 – 60 hours** **80 – 100 hours**

(1)

(b) (i) Describe how the concentration of glucose in the fermenter changes between 0 and 30 hours.

_____

_____

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_____

_____

(2)

(ii) How does the change in the concentration of oxygen in the fermenter compare with the change in concentration of glucose between 0 and 30 hours?

Tick (✓) **two** boxes.

The oxygen concentration changes after the glucose concentration. ☐

The oxygen concentration changes before the glucose concentration. ☐

The oxygen concentration changes less than the glucose concentration. ☐

The oxygen concentration changes more than the glucose concentration. ☐

(2)

(iii) What is the name of the process that uses glucose?

Draw a ring around **one** answer.

distillation **filtration** **respiration**

(1)

(Total 6 marks)

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Q2.

Obesity is linked to several diseases.

(a) Name **two** diseases linked to obesity.

1. _____

2. _____

(2)

(b) Scientists trialled a new slimming drug.

The table shows their results after one year.

Percentage change in mass of each volunteer	**Number of volunteers**
gained mass or lost 0 to 3.9 %	1900
lost 4.0 to 4.9 %	1100
lost 5.0 to 9.9 %	1500
lost 10 % or more	1500

(i) Calculate the proportion of the volunteers who lost 10 % or more of their mass.

You should first calculate the total number of volunteers, then work out the proportion.

_____

_____

Proportion of volunteers = _____

(2)

(ii) The National Health Service (NHS) gave permission for the drug to be used.

Use information from the table to suggest a reason why the NHS gave permission for the drug to be used.

_____

_____

(1)

(Total 5 marks)

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Q3.

Polio is a disease caused by a virus. In the UK, children are given polio vaccine to protect them against the disease.

(a) In the sentences below, draw a ring around the correct words in each box.

(i) It is difficult to kill the polio virus inside the body

because the virus

is not affected by drugs
lives inside cells
produces antitoxins

(1)

(ii) The vaccine contains an

active
infective
inactive

form of the polio virus.

(1)

(iii) The vaccine stimulates the white blood cells to

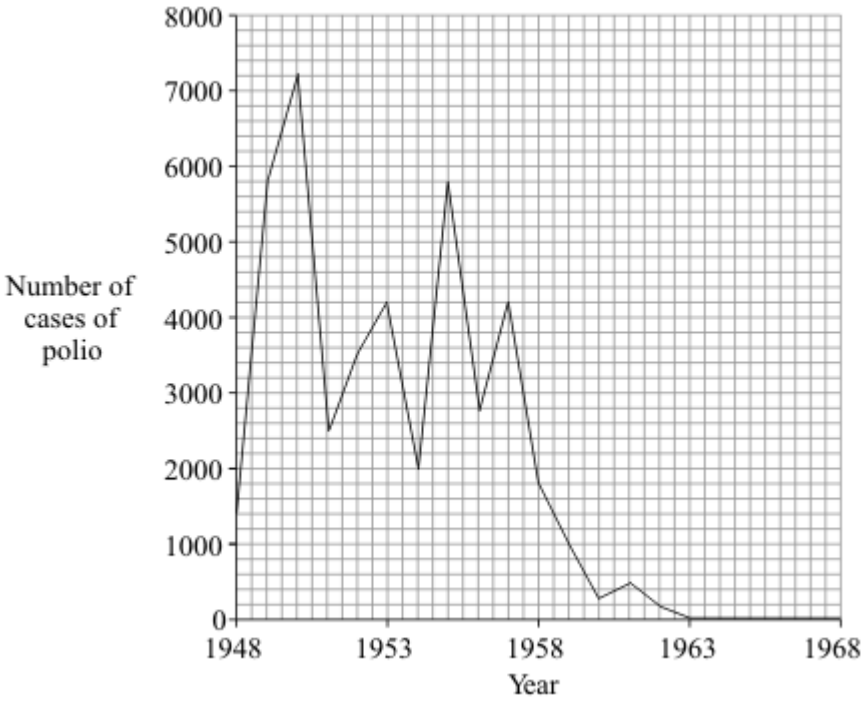
produce

antibiotics
antibodies
drugs

which destroy the virus.

(1)

(b) The graph shows the number of cases of polio in the UK between 1948 and 1968.



(i) In which year was the number of cases of polio highest?

_____

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(1)

(ii) Polio vaccination was first used in the UK in 1955.

How many years did it take for the number of cases of polio to fall to zero?

_____

(1)

(iii) There have been no cases of polio in the UK for many years. But children are still vaccinated against the disease.

Suggest **one** reason for this.

_____

_____

(1)

(Total 6 marks)

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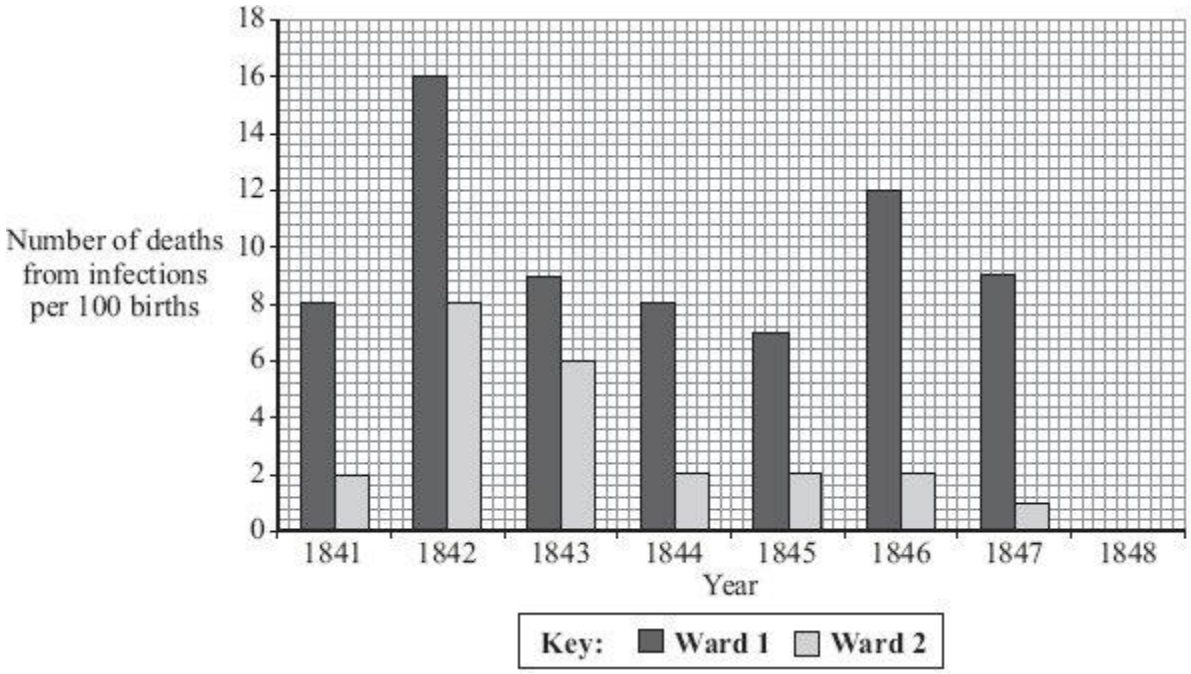
Q4.

In the 19th century, Dr Semmelweiss investigated infection in a hospital.

He compared the number of deaths of mothers on two maternity wards.

- On **Ward 1**, babies were delivered mainly by doctors. These doctors worked on many different wards in the hospital.
- On **Ward 2**, babies were delivered by midwives. The midwives did **not** work on other wards.

The bar chart shows the results of his investigations.



(a) (i) 600 mothers gave birth on **Ward 2** in 1845.

How many mothers died from infections on **Ward 2** in 1845?

Show clearly how you work out your answer.

_____

_____

Number of mothers who died _____

(2)

(ii) Which was the safer ward on which to have a baby?

Draw a ring around your answer. **Ward 1** / **Ward 2**.

Using data from the bar chart, give a reason for your answer.

_____

_____

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(1)

(b) In January 1848, Dr Semmelweiss asked all doctors to wash their hands before delivering babies.

The table shows the number of deaths on the two wards in 1848.

Ward	Number of deaths from infections per 100 births
Ward 1	3
Ward 2	1

(i) Plot this data on the bar chart above.

(1)

(ii) What was the effect on the death rate on **Ward 1** of doctors washing their hands before delivering babies?

_____

_____

(1)

(iii) Suggest an explanation for this effect.

_____

_____

(1)

(Total 6 marks)

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