

2001 HIGHER SCHOOL CERTIFICATE EXAMINATION

Biology

Section I – Part B (continued)

Marks

Question 25 (3 marks)

Antibiotics are drugs widely used in most industrialised societies. They are used to treat bacterial infections, are added to animal feed, and have been included in plastic products such as sandwich bags.

3

Explain TWO possible effects of this widespread use of antibiotics on the likely spread of disease in the future.

The wide use of antibiotics will allow the diseases which will spread in the future to build up a resistance to the antibiotics and so creating a super bug which will not be worried by antibiotics a similar problem occurred when mosquitoes became resistant to DDT.

Question 26 (3 marks)

When a body organ is transplanted from one person to another, the immune system of the recipient is triggered.

- (a) Patients who have an organ transplant are given drugs to suppress their immune response. State the reason for this.

1

Some patients' antibodies may recognise the organ transplant as an antigen (a foreign substance), meaning that the body will trigger an immune response resulting in a rejection of the organ transplant.

- (b) Explain a possible consequence for the general health of organ transplant patients as a result of suppressing the immune system.

2

This may mean that the patient is open to infection and disease as the suppressing of the immune system means the immune response has stopped. Therefore if another antigen enters the body the patient's body can't initiate an immune response.

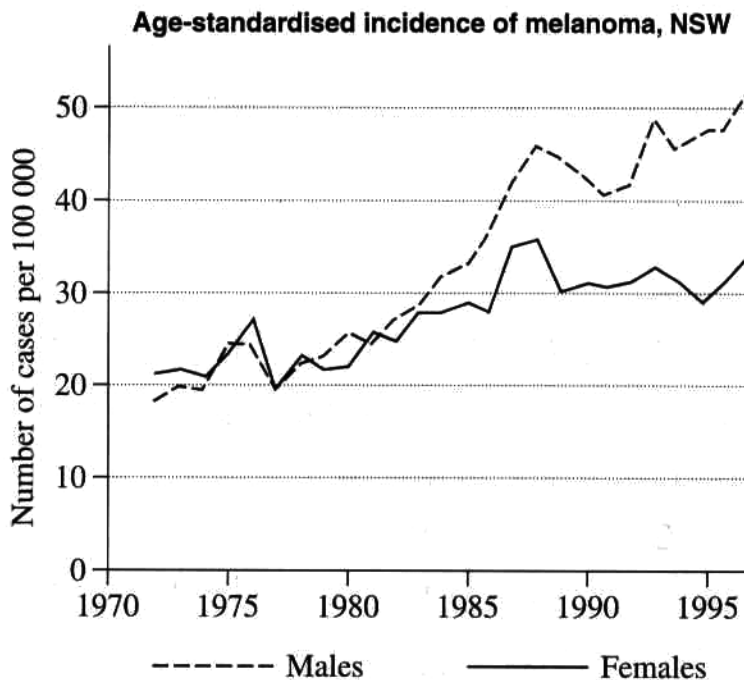
**Marks**

**Question 27** (4 marks)

Epidemiological studies have demonstrated a relationship between ultraviolet radiation exposure and the development of melanoma, a type of skin cancer.

**4**

The graph shows the rate of occurrence of melanoma in males and females between 1972 and 1997.



A student studying the graph made the following statement.

'The incidence of melanoma will continue to increase beyond 1997 at a greater rate in males than in females.'

Analyse the data in the graph to assess the validity of this statement.

The statement is valid as at 1995, number of male cases of melanoma is 15,000 more than woman. The men will continue to increase as the woman have been fairly level since 1987 & the men have continued to increase in spurts. From 1995 both men & woman have increased in melanoma although with men increasing at a higher rate.

Marks

Question 28 (8 marks)

Evaluate the impact of major advances in scientific understanding and technology, in the field of genetics, on developments in reproductive technologies.

8

with advances in understanding, scientists are now able to determine whether or not unborn children will be healthy or not - with the use of modern technology they can check its blood and <sup>its genes to</sup> see if it has any problems. (Discovering early if ~~is~~ the ~~mother~~ baby has Down Syndrome for example.)

Technology has also helped with artificial insemination, a lot of women are becoming pregnant this way. Also IUF - in earlier days when women could not get pregnant that was that but ~~know~~ it can be helped, and women who thought it impossible are now becoming pregnant - with the use of advanced technology.

Developments in reproductive technologies will continue to occur for many years to come, and with that will come many changes in the field of genetics.