

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.

One possible effect of this widespread use of antibiotics is that the spread of disease or "diseases" it self will become immuned to some antibiotics. Secondly, our bodies will not use the antibiotics to there full potential so stronger and faster vaccines will need to be made.

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

Patients are given drugs so that the body wont reject the ~~organ~~ foreign organ

(b) Explain a possible consequence for the general health of organ transplant patients as a result of suppressing the immune system. 2

The body might reject the organ because it ~~is~~ proteins are different to the proteins in the body. This consequence ~~may~~ leads to the malfunction of the organ

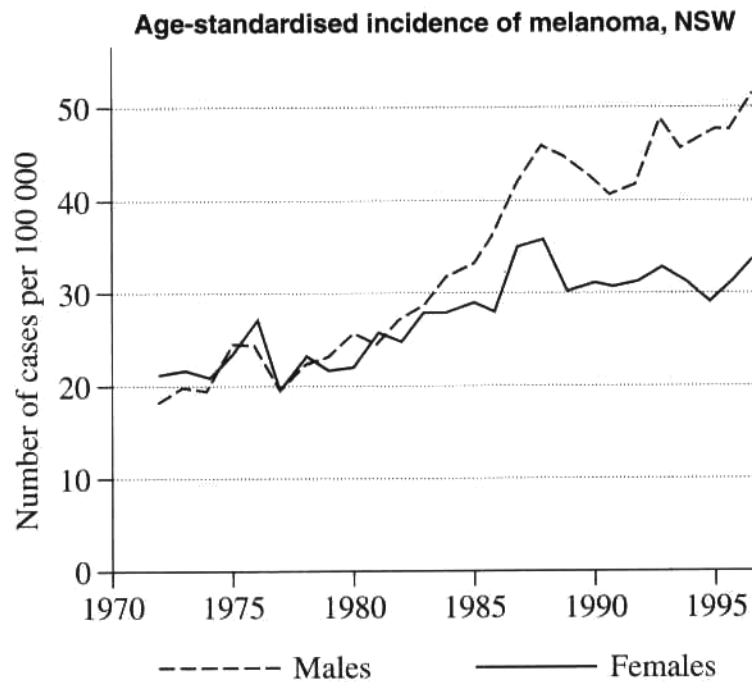
Marks

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.

This statement is very valid. In 1995 the number of male cases per 100,000 was over 50,000 and it looked to still increase past 1995. The rate of womens ~~cases~~ ^{cases} seemed also to be increasing past 1995. The male cases seem to be increasing at a much faster rate compared to that of female cases.

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

Technological advance and scientific understanding have had a major impact in the field of genetics. During the past years with the understanding of Mendel's experiments and Morgan's, and Sutton-Boveri - Chromosomal theories many developments in reproductive technologies has occurred. These technologies are made to have desired characteristics in species for the market mass. These technologies include cloning, having the exact characteristic by extracting the DNA from the organism and inserting it into another. Artificial insemination - here mating is not done but it is done by injecting the sperm into a female organism. Artificial pollination by extracting a pollen and place it on the semen. Genetic engineering, and also transgenic species, which a a desired characteristic is inserted. These reproductive technologies have advantages and disadvantages
advantage - it suits our needs
Disadvantage - Destroys the natural characteristics of organisms.