

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.

- diseases become immune to the antibiotic therefore the antibiotic is useless in trying to fight bacteria + disease.  
- the use of so much antibiotic can lead to the elimination of diseases and bacteria; creating a healthier life for everyone.

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

The body sees the new organ as a foreign object - and try to reject it.

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

2

If they suppress the immune response then little viruses such as the flu can have a damaging effect on their health.

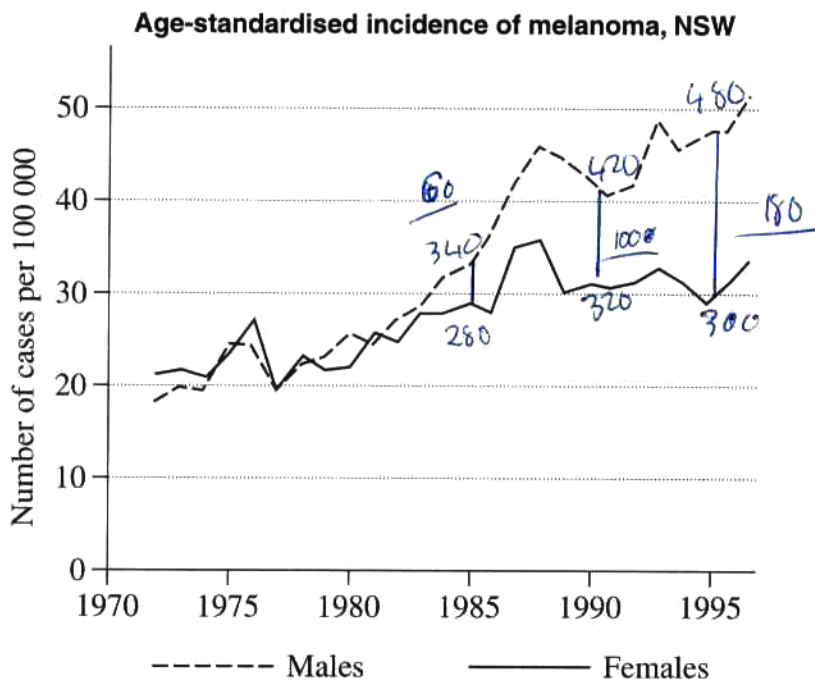
Marks

**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 data on the graph shows that the number of cases of melanoma is greater in males. In 1997 the male cases were 520 000 ~~000~~ whereas as the women's cases at approximately 340 000. The males rate can be valid to say that it may ~~continue~~ continue to increase. The validity of this inference one most likely due to society and its issues such as males have to have a tanned body. ~~Since~~ Since 1985 and every 5 years later the male rate close to doubles every 5 years, the following 5 years will most likely follow this rate.

Marks

Question 28 (8 marks)

8

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

There has been many major advances in scientific understanding and technology in genetics, on developments in reproductive technologies. For example, the ~~genes~~ chromosomes which code for certain characteristics, can be found on the sex chromosomes. Scientists are able to understand which characteristics are mutations and will harm the unborn child. Scientists can tell if the baby will have birth defects, and how to treat them. Another example is cloning. Scientists have been able to produce an exact copy of one organism. This is done by taking egg cells from the original organism and implanting it with sperm cells and information to produce the exact copy. Scientists are also ~~able~~ ~~to~~ understanding the potential of stem cells. These cells can be turned into any type of cell found within or on the ~~the~~ body. This means that reproductive organs could be produced for those with damaged reproductive organs (in the future). Also, mothers are able to ~~be~~ have their ~~injected with sperm cells~~ eggs implanted with sperm cells, if it is hard for the mother to fall pregnant. This is done by taking a number of eggs from a mother and artificially implanting sperm cells into them.