

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.

...This widespread use of antibiotics means humans ingest it everyday. Therefore bacteria will come in contact with it. This will kill off the microflora (useful bacteria) and lead to ^{harmful} bacteria becoming immune as bacteria resistant to antibiotics will survive & breed.

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

Because the body will recognise the transplant as foreign and will reject the transplant if the immune system is not suppressed.

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

2

Suppressing the immune system decreased the ability of the body to fight off infection, thereby increasing the risk of pneumonia, staphylococcus aureus, and other diseases. The risk of infection must be carefully considered when patients undergo an organ transplant.

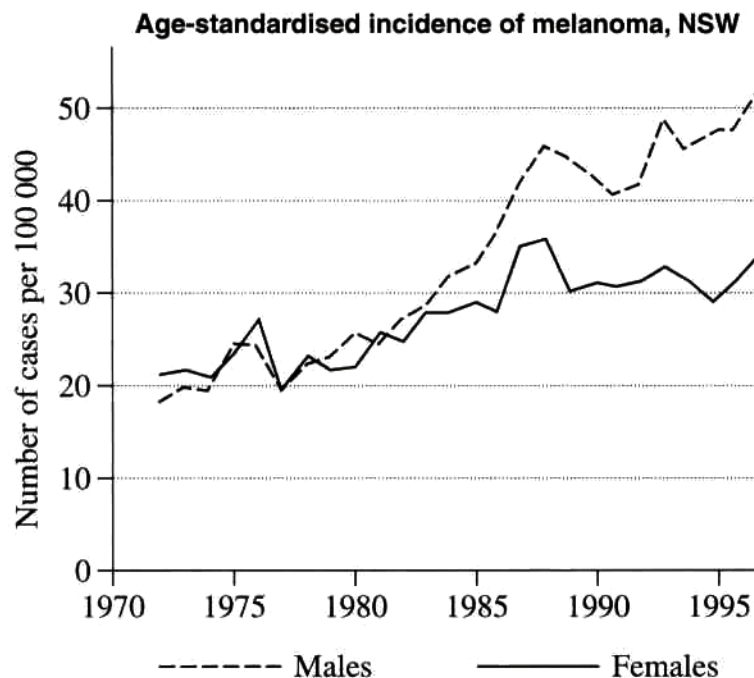
Marks

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.

incidence of melanoma already higher for males so will keep increasing until the health profession people realise the effects of ultra violet radiation and reduce their exposure to the risk factor (sun) and in time this will result in a reduction of incidence in males and females.

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

Artificial insemination has enabled individuals to opt for desirable characteristics for the parents. Male sex cells are obtained from the male with best suited characteristics. These male sex cells are then implanted into a favourable female. For example, farmers use this method to produce high quality livestock. Artificial insemination has had a positive impact on the population. Cloning is another reproductive technology that scientists have developed. Cloning produces offspring that are genetically identical. Populations with no genetic diversity will be more likely to be wiped out to changes in the environment or of introduction of diseases. No variations in DNA will mean that **NO** characteristic that will better suit an individual to there environment will be passed on ^{to} the offspring. Cloning will have a negative impact on populations. Artificial pollination is another form of reproductive technology. Pollen from one plant is combined with the pollen from another plant. This technology produces increased variations as pollen is spread to plants that it wouldnt normally be spread to. New genetic diversity occurs so therefore new species are developed. Reproductive technologies can have both positive and negative impacts on society.