Answer Scheme for Replacement Questions Year 12 2010 Trial HSC Examination.

PART A

3 - C
5 - D
13 - D
14 - B

PART B

Question 39

Q29 (a) (1 Mark)

Criteria	Marks
• Defines the term *transgenic species* eg. A transgenic animal is one that carries a foreign gene that has been deliberately inserted into its genome.	1

Q29 (b) (2 Marks)

Criteria	Marks
• Outlines ONE method used to produce a transgenic species. There are three basic methods of producing transgenic animals (only need 1): DNA microinjection, retrovirus-medicated gene transfer, embryonic stem cell-mediated gene transfer (need method name and a brief explanation)	2

Q29 (c) (2 Marks)

Criteria	Marks
• Discusses TWO ethical issues arising from the development and use of transgenic technology • Answers could include the release of "super species" into the natural environment that outcompete native species causing extinction etc./the unintentional release of genes into pest species offering resistance to pesticides etc./or the unintentional production of harmful chemicals in crops or food species	2

Question 30

Q30 (a) (1 Mark)

Criteria	Marks
• One symptom described	1

Sample answer:
CF sufferers would cough a lot because of the mucus build up in their lungs.

Q30 (b) (1 Mark)

Criteria	Marks
• Defensive role outlined	1

Sample answer:
Mucus traps pathogens

Q30 (c) (4 Marks)

Criteria	Marks
• Pattern of inheritance of each disorder described or illustrated using pedigrees or punnet squares • Pattern related to dominance/recessiveness • Point made that only homozygous individuals will show CF but that hetero zygotes will show HC	4
• Student infers 3 of the above OR • Student states 2 of the above	3
• 1 of the above OR • 2 done less well	2

• 1 done poorly	**1**

Sample answer:
CF is caused by a recessive allele, therefore sufferers must be double recessive (homozygous). Their parents must either have the disease or be heterozygous. Therefore it is likely that the parents and grandparents of a sufferer do not have it. Huntington's (HC) is caused by a dominant allele. Anyone homozygous or heterozygous will have it. For someone to inherit HC, at least one of their parents must also have it. In a c5ross between 2 parents heterozygous for CF, 25% of their offspring might be expected to show the condition (See below left). In a cross between HC sufferer and a non-sufferer, 100% of the offspring will have the condition if the parent was homozygous, and 50% if they were heterozygous (see below right).

	N	n
N	NN	Nn
n	Nn	**nn**

	H	h
h	**Hh**	hh
h	**Hh**	hh

Question 32

Q32 (b) (i) (2 Marks)

Criteria	Marks
• Correctly identifies both structures	**2**
• Correctly identifies one structure	**1**

Sample answer:

Y – Iris

Z – Vitreous humour

Q32 (b) (ii) (3 Marks)

Criteria	Marks
• Identifies 'X' as the lens • A correct aspect of structure given • Clearly related to function	**3**
• All of the above but not directly related OR • TWO of the above	**2**
• ONE of the above	**1**