Assessment Schedule – 2006

Science: Describe genetic processes (90729)

Evidence Statement

Q	Achievement	Achievement with Merit	Achievement with Excellence
1(a)	RNA polymerase.		
1(b)	**Eg** • DNA carries the genetic code, mRNA copies this code for a specific gene. • mRNA transfers the genetic code or the sequences of bases or triplets for a gene from DNA. • mRNA makes a copy of DNA and moves it to the ribosome/cytoplasm.	**Eg** • mRNA transfers the genetic code from DNA or the sequences of bases or triplets for a gene from the nucleus to the cytoplasm. • mRNA copies the genetic code from DNA or the sequences of bases or triplets for a gene by complimentary base pairing.	**Eg** mRNA transfers the genetic code or the sequences of bases or triplets for a gene from DNA in the nucleus to the ribosomes in the cytoplasm. mRNA gets this code by complimentary base pairing.
2(a)	A gene codes for an enzyme that is a protein.	The sequence of bases in a gene determines the amino-acid sequence in an enzyme.	
2(b)(i)	Tyr – Leu – Thr – Ala – Glu –		
2(b) (ii)	Ala changed to Thr.		
2(b) (iii)	Deletion.		
2(b) (iv)	**ONE** of the following: • Amino-acid sequence now Tyr – Gln – Leu – Pro – . • This codes for a completely different protein. • A frame-shift mutation occurs and changes all of the code that follows.	Amino-acid sequence now different (Tyr – Gln – Leu – Pro – Lys –) which codes for a completely different protein.	Amino-acid sequence now different (Tyr – Gln – Leu – Pro – Lys –) . This codes for a completely different protein which will function quite differently from the original protein.
3(a)	A living organism with a foreign gene added to it.		
3(b)	Ligase		
3(c)	This enzyme completes the DNA backbone.	This enzyme completes the DNA backbone by forming covalent bonds.	
3(d)	**Eg** • The pollen will spread taking the introduced gene with it. • The introduced or GM or GE gene may spread to weeds. • The weeds may become resistant to viral attack (or similar example).	• The pollen will spread taking the introduced gene with it so that the introduced or GM or GE gene may spread to weeds. • The pollen will spread taking the introduced gene with it so that the introduced or GM or GE gene may make weeds resistant to viral attack (or similar example).	The pollen will spread taking the introduced gene with it so that the introduced or GM or GE gene may spread to weeds and may make weeds resistant to viral attack (or similar example).

4(a)	**Eg** • Choosing a gene • detecting pathogenic bacteria • DNA fingerprinting • DNA profiles • detecting genetic markers for specific genes (eg mutated genes).		
4(b)	The probe will anneal or base pair with the specific piece of DNA.	The probe will anneal or base pair with the specific piece of DNA containing the complementary sequence to that on the probe.	

Judgement Statement

Science: Describe genetic processes (90729)

Achievement	Achievement with Merit:	Achievement with Excellence
SIX questions answered correctly. Minimum of 6 × A	SEVEN questions answered correctly, including at least THREE at Merit level. Minimum of 3 × M + 4 × A	EIGHT questions answered correctly, including at least ONE at Excellence level and at least FOUR at Merit level. Minimum of 1 × E + 4 × M + 3 × A