

GCSE Biology

SAMPLE MARK SCHEME

First Examination Summer 2008

USING THE MARK SCHEME

1. This mark scheme gives you;
 - * an idea of the type of response expected
 - * how individual marks are to be awarded
 - * the total mark for each question
 - * examples of responses that should not receive credit.
2. ; separates points for the award of each mark.
3. / means that the responses are **alternatives** and either answer should receive full credit.
4. () means that a phrase/word is not essential for the award of the mark but helps the examiner to get the sense of the expected answer.
5. Phrases/words in **bold** indicate that the meaning of the phrase/word is **essential** to the answer.
6. OWTTE (or words to that effect) and eq (equivalent) indicate that valid alternative answers (which have not been specified) are acceptable.
7. 'Ignore' means that this answer is not worth a mark but does not negate an additional correct response.
8. 'Reject' means that the answer is wrong and negates any additional correct response for that specific mark.
9. ORA (or reverse argument) indicates that the complete reverse is also valid for the award of marks.
10. ecf (error carried forward) means that a wrong answer given in an earlier part of a question is used correctly in answer to a later part of the same question.

MARKING

1. You must give a tick (in red) for every mark awarded. The tick must be placed on the script close to the answer. The mark awarded for part of a question should be written in the margin close to the sub-total.
2. The sub-total marks for a question should be added together and the total written and ringed at the end of the question then transferred to the front of the script.
3. Suggestion/explanation questions should be marked correct even when the suggestion is contained within the explanation.
4. **Do not** award marks for repetition of the stem of the question.
5. Make sure that the answer makes sense. Do not give credit for correct words/phrases which are put together in a meaningless manner. Answers must be in the correct scientific context.

AMPLIFICATION

1. In calculations, full credit must be given for a bold, correct answer. If a numerical answer is incorrect, look at the working and award marks according to the mark scheme.
2. Consequential marking should be used in calculations. This is where a candidate's working is correct but is based upon a previous error. When consequential marks have been awarded write "ecf" next to the ticks.
3. If candidates use the mole in calculations they must be awarded full marks for a correct answer even though the term may not be on the syllabus at their level.
4. If candidates use chemical formulae instead of chemical names, credit can only be given if the formulae are correct.

- 1)
- a)
- i) Any two from:
 - 1. protection in numbers;
 - 2. less risk to individual;
 - 3. more eyes to spot predators;2
 - ii) Overgrazing/ disease easily spread; 1
 - b) more chance of catching/ overpowering prey/larger prey
any good explanation eg work as a team/ communication 1
 - (i) can see predators across a wide area; 1
 - (ii) narrower/at front 1
 - (iii) can judge distance better 1

Total 9 marks

- 2)
- (a) Any two from:
 - 1. less scientific words/ ORA;
 - 2. more detailed information/ ORA;
 - 3. measurements/results/graphs given/ ORA;2
 - (b)
 - (i) to get people to think about why it is a miracle/ ORA 1
 - (ii) idea of interfering with nature/playing God;
consequences not known/relatively unknown technique; 2
 - (iii) Any three from:
 - Use of stem cells/foetal cells/animal cells;
 - Correct reference to dopamine;
 - Large quantities can be made;
 - Help reduce symptoms, eg shaking;3

Total 8 marks

- 3)
- (a)
- (i) Restriction enzyme; 1
- (ii) So that the yeast cell starts to make the enzyme; 1
- (iii) two from:
 increase the number of yeast cells;
 Increase amount of enzyme made;
 Make enough to be harvestable; 2
- (b)
- (i) chymosin; 1
- (ii) normal cheese is made with rennet from calves stomach; 1
- Total 6 marks**

- 4)
- (a) any three from:
 salicylic acid;
 found in bark;
 has medicinal properties;
 pains relief, eases fevers, reduces inflammation; 3
- (b) genomics 1
- (b) any three from:
 less reliance on insulin from animal sources;
 insulin made by microorganisms;
 same as human insulin;
 larger quantities available;
 less risk than animal sourced insulin; 3
- Total 7 marks**

- 5)
- (a) to collect enough food to feed themselves;
 to provide enough food for offspring;
 stop predators eating eggs; 2
- (b)

- (i) instinctive reaction to what could be an intruder robin; 1
- (ii) ensures survival of stronger/ more competitive birds; 1
- (c) Any three from:
to ensure eggs hatch;
to ensure fledglings have sufficient food;
to teach fledglings how to feed themselves;
to help protect fledglings from predators; 3
- (d) much less food in winter/ ensures some individuals survive 1

Total 8 marks

6)

a)

- i) facial expression may mean something different/ grin shows fear in chimpanzees; 1

- ii) any two from:
body posture/language;
making sounds;
hand/arm movements; 2

b)

- i) a chemical messenger released into the environment; 1

- ii) sexual attraction; 1

Total 5 marks

7)

- (a) any three from:
Insertion of herbicide resistant gene into plant;
Use of *Agrobacterium*;
As carrier/vector of required gene 3

- (b) checking for potential problems;
see if h-r gene transfers into conventional crops/weeds;
see if gene has effects on other plants;
see if gene has effects on food web; 2

- (c) advantages: (max 2)
 less labour intensive when plants are growing;
 damaged crops do not need to be removed;
 larger crop/more food produced;
 crop not destroyed when weeds are sprayed;
- (d) disadvantages: (max 2)
 higher initial cost;
 in preparation of h-r crop seed;
 risk of h-r gene transferring to weeds;
 spraying of weeds would not kill them;

4

Total 9 marks

8)

a)

- i) Any two from:
 provide food;
 provide skins for clothing;
 provide transport;

2

- ii) one from:
 too aggressive;
 too smelly;

1

b)

- (i) Any two from:
 companionship;
 protection;
 assist with work;

2

- (ii) for:
 one from:
 animals should be treated properly;
 animals should not be eaten;
 animals should not be used for research;

1

Against:

One from:

- Humans need to eat meat;
 Research on animals helps to find cures for diseases.
 Research cannot be done on humans;

1

c)

giving animals human characteristics;

1

and any one from:

cartoons with human-like animals;
dressing animals in clothes;
talking to animals as equals;

1

Total 9 marks

TOTAL FOR PAPER: 60 MARKS