GRADE 11 EXAMINATION
NOVEMBER 2007

LIFE SCIENCES: PAPER I
SECTIONS B & C

MARKING GUIDELINES

Time: 2½ hours Total marks: Section A = 50, Section B & C = 100

The marking guide is a working document prepared for use by teachers as they assess the Grade 11 externally set examinations.

There may be different interpretations of the marking guidelines but the teacher should keep as closely as possible to the suggested way of assessing. When in doubt, a teacher should check with another member of the cluster or with the relevant Assessment Specialist.

SECTION B

QUESTION 2

2.1

2.1.1 Cell wall present in bacterium, absent in virus ✓ membrane in bacterium, absent in virus ✓ no cytoplasm present in virus ✓ or other correct difference. (3)

2.1.2 DNA is hereditary material ✓ controls functioning of organism ✓ or other reason. (2)

2.1.3 No cell membrane ✓ and no cytoplasm ✓ or other reason. (2)

2.1.4 HIV virus ✓ or other virus. (1)

2.1.5 Transmitted in the blood or other body fluids from one person to another ✓ has to live in fluids otherwise will die ✓ lives in cells of immune system ✓ therefore this system fails and patient can die due to infection by many bacteria or viruses ✓ or any other 3 reasons. (3)

2.2

2.2.1 People died from this infection ✓ it was contagious ✓ it killed people very quickly ✓ (2)

2.2.2 Microscopes were not in common use so they could not correctly identify the bacterium ✓ or culture this bacterium in tissue taken from dead bodies. ✓ or other reason. (2)

2.2.3 Dead from all diseases – dead from diseases other than plague = number dead from plague ✓ or culture this bacterium in tissue taken from dead bodies. ✓ (2)

2.2.4 Numbers dead from plague and other diseases has decreased ✓ also % dead from plague. ✓ All weak and old people dead ✓ maybe resistance developing ✓ in survivors or, other carriers of the plague died ✓, medical people worked out a way of treating patients ✓ other reasonable explanation. (5)

2.3

2.3.1 Parasite ✓ (1)

2.3.2 a. One celled organism/very simple, microscopic organism ✓
b. Substance given to organism to build up resistance to a pathogen/disease ✓
c. Substances made by body's immune system to kill off invading organisms ✓ (3)

2.3.3 Less oxygen delivered to body cells ✓ less energy ✓ (2)

2.3.4 Sexual reproduction produces Plasmodium with a variety of genes ✓ therefore organism not recognised ✓ so body's defence chemicals do not recognise them as antigens/pathogens/ disease causing ✓ (3)

2.3.5 If no entry to the liver ✓ which is what drug does, the small numbers ✓ can be killed off ✓ (3)

2.3.6 Mark according to rubric

Understanding of how life cycle of malaria will be affected by DDT.	Clear understanding showing show death of mosquito causes break in life cycle. 3	An attempt made to connect DDT to life cycle, but no clear link between break in life cycle and elimination of Plasmodium. 2	Little attempt made, disjointed connection between the mosquitoes and Plasmodium. 1
Argument for people or environment.	Well developed argument, either for or against DDT. People need protecting or environmental issues of food chains of more overall importance. 3	An attempt to construct an argument but not substantiated with a clear argument. 2	Little attempt to argue for either environment or people. No stand taken. 1

(6)

40 marks

QUESTION 3

3.1

3.1.1 D
3.1.2 F (2)

3.2

3.2 I becomes larger or smaller ✓ to allow more or less light to enter the eye ✓ The iris muscles are responsible for this. ✓ H becomes wider or narrower✓ to focus on objects nearer or further away from the eye ✓ this is called accommodation ✓ and the lens is the structure which changes ✓ (6)

3.3 Hypothesis: The more light ✓ entering the eye the smaller the pupils become ✓
Aim: To show that the pupils ✓ are sensitive to light intensity ✓
Method:

- Get your subject to place her hands over both eyes ✓ for a specific number of minutes ✓
- Ask her to rapidly remove her hands ✓ and observe the changes to her pupils ✓
- Repeat the experiment several times to increase validity ✓
- Write down your observations ✓ or other experiment which is valid
- There are many possible answers here.

(Any 8 points)

3.4

3.4.1 It is found behind the pinna. ✓ The aid has increased ✓ the gain of sound waves by between 40 – 50 dB. ✓ This is in the range of normal speech ✓ This will help him in class as he can hear the teacher better. ✓ Other sounds not amplified as much ✓ (5)

3.4.2 Organ of Corti ✓ (1)

3.4.3 ear drum ✓ (1)

3.4.4 cerebrum ✓ (1)

24 marks

QUESTION 4

4.1 brain ✓ (1)

4.2 The female flowering tips and adjacent leaves ✓ (1)

4.3 mark according to rubric

Facts presented relating to benefits	Four reasons given in well constructed sentences showing an understanding of the significance of the reduction of the symptoms 4	Three reasons given or not an understanding shown of the impact of the conditions mentioned in the text 3	Two reasons given or lists given of conditions, no elaboration attempted 2	One reason given or inability shown to extract information from text accurately 1
Motivation for research grant	Used economic, historical and physiological factors in a well constructed argument 4	Used some factors in an argument, but not well integrated 3	Used factors but little attempt to construct a coherent argument 2	Largely ignored this part of the question or little ability to extract information accurately from the text 1

(8)

4.1

4.4.1 It is the space between two neurons ✓ through which the nerve impulse travels as a chemical message ✓ (2)

4.4.2 Stimulus received by a sense receptor, passes along a sensory neuron and slow transmission ✓ to connector neuron and again to motor neuron ✓ so the response by the effecter slower ✓ so protective response by the body not as effective as it should be ✓ (4)

16 marks

Total for Section B: 80 marks

HOLISTIC RUBRIC TO MARK ESSAY

Criteria	Marks
• Content knowledge well selected to provide a well supported argument. Conceptual understanding persuasively links problems of heart functioning to CHD. • Content is used to provide evidence in the report for a strategy for the reduction of CHD that is clear, effective and manageable. • Data provided is integrated into the answer to produce a persuasive answer. • Proposal is sustained, well structured and logical, using language and style that enhances the essay.	**17 – 20**
• Evidence exists that there has been selection of facts to produce an argument. An attempt has been made to link problems of heart functioning to CHD. • Content is used to provide evidence for a report for the reduction of CHD that is practical. • Data provided is integrated in the answer. • Proposal is structured, language and style makes for easy reading.	**13 – 16**
• Accurate facts are presented but argument not well constructed. Facts relating to CHD not integrated with facts on heart functioning. • Report is not sustained by facts. • Some use of data provided in the answer but inaccuracies or incorrect assumptions evident. • Proposal is disjointed, complicated by language and style.	**9 – 12**
• Facts presented but some inaccuracies detected. No argument presented for CHD affecting heart functioning. • Report not easy to follow. • Little use of data evident. • Communication skills do not enhance the essay.	**5 – 8**
• Inaccurate information on the circulation system presented. • No evidence of a strategy for a report presented. • Communication skills are such that the facts are muddled and disorganised.	**1 – 4**

(20)