



CHIEF MARKER'S REPORT

SUBJECT:	LIFE SCIENCES PAPER 1 (LFSC Paper 1)
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1. ANALYSIS OF QUESTION BY QUESTION PERFORMANCE

QUESTION 1

The objective of this question was to assess the ability to construct and apply knowledge of Life Sciences. In doing so, candidates needed to show their abilities to apply Life Sciences knowledge and demonstrate an understanding of appropriate terminology applicable in this learning area. Most of this question covers LO 2 (CONSTRUCTING AND APPLICATION OF LIFE SCIENCES KNOWLEDGE) specific AS 2 where they had to interpret, organise, analyse, compare, evaluate and apply.

Questions 1.1 to 1.3 were very easy and many candidates scored high marks.

1.4.1 This question was of a higher order. The diagram shows the offspring of crosses between a pure-bred-black coat bull and a pure-bred white coat cow. Many students misread 1.4.1 as the genotype. Their answers were BB and bb. The question wanted the gene for this specific colour.

Question 1.4.2 was also poorly answered. The students also included no 5 in their answers. This does in fact due to them not understand that out of the three offspring, which are in the 2nd filial generation, it is due to chance fertilization that the individuals 5 to 7 could either be all homozygous or heterozygous for the black coat colour. Many students did not take note of the words "**must be homozygous**".

1.5. Question 1.5.3 and 1.5.4(b) seemed very similar and many students lost marks here.

1.6.1 Students left out the unit for the temperature and they lost a mark.

1.6.3 This question relied on prior knowledge of fertility. Learners explained the trend of the graph in general instead of linking the graph with woman's fertility.

1.7.3 And 1.7.4 covered LO3 (Life Sciences, Technology, Environment and Society). The objective of this question was to assess their knowledge about beliefs, attitudes and values of scientific knowledge and its application in society. (AS3) Candidates had the wrong interpretation of the question. They came up with methods of preventing pregnancy and HIV/ AIDS which were not asked.

The analysis of marks per question per 100 candidates show that question 1 was answered the best with an average of 24, 27.

QUESTION 2

2.1. The objective with this question was to assess if candidates could analyse the diagram of meiosis and give back the knowledge that was taught in class (LO 2 AS2). Some students lost marks, because they only gave “chromosomes” in 2.1.1 instead of homologous chromosomes. Many students could not identify the phase in the diagram. This might be because of the different books that are used and also that teachers are not teaching this section very well. Candidates gave the answers as Metaphase instead of Metaphase 1. The explanation of this phase was also problematic. Many students see homologous chromosomes and bivalent as the same word. This needs to be clarified by teachers. Bivalent refers to the arrangement of the homologous chromosomes. Teachers are advised to use different sources when teaching this section of cell division. Question 2.16 was poorly answered by many candidates. This needs special attention from teachers.

2.2. This question was very prescriptive and very little variation was allowed. Some candidates lost marks for not giving the labels next to their diagram. They left out the words on the side like phenotype, genotype, meiosis and F1 generations. However most candidates had it in the order of the national memorandum. Most candidates received more than 3 marks out of 6

2.3. The question asks to tabulate. Most learners did not do that. Teachers should practice this skill with students.

2.4.2. Most learners could not explain the answer. This question assessed the ability of students to analyse, synthesise and evaluate data (LO1; AS3).

The analysis of marks per question per 100 scripts for this question was 12, 78.

QUESTION 3

Question 3.1 was based on the female reproductive system and was well answered by most candidates. The question assessed if candidates could analyse diagrams and give back the knowledge that was taught in class (LO2; AS2).

The number of chromosomes in question 3.1.3 also seems to be problematic. They would get the first one correct but for those who wrote 23 in 3.1.3 (b) forgot to write pairs as these chromosomes are in pairs.

In drawing the diagram, some learners did not write the caption. Some of them did not draw only the sperm cell, but also drew the egg cell.

In 3.1.6 many learners think that the umbilical cord is transporting blood. This is a huge mistake and must be erased from learners' memories.

3.2. Most candidates scored full marks for this question.

3.3. This question assessed if the candidates could compare data, critically analyse it and make deductions from it. (LO 1; AS3). Most of the answers the candidates could read from the question paper. This section of the question was poorly answered.

Learners lack knowledge of the process of pollination.

The analysis of marks per question per 100 scripts for this question was 15, 77.

QUESTION 4

4.1. This question is based on karyotype of a human. This question assesses if the candidate can interpret and make meaning of knowledge in life sciences. The candidates understood this first part of this question very well. Many lost marks with 4.1.4. They would say there are 47 chromosomes. They needed to indicate that number 21 carries 3 or an extra chromosome.

4.2. This question required a simple calculation from candidates and some of them could not do this. They do not understand ratio. This question assesses if the student can do calculations. This needs attention from teachers.

4.2.2 Most students answered it correctly.

4.2.3 The objective of this question was to assess the ability of the student to re-organise data. Graphs should be practised at the school and students should be made aware of the different types of graphs.

Tips for the teachers:

1. Graph should have a heading with both variables mentioned
2. It should have a key
3. The X and Y axis should be labelled
If the student does this without drawing the graph, he will get 5 out of 9 marks.

4.3. Learners from some schools did their best in answering this question; Some even indicated the steps of Planning in the sequence. For some schools this seems to be a nightmare what has been actually done by the learners is to indicate what should be done when the investigation is actually carried out instead of planning.

Special attention should be given by both teachers and subject advisors to improve this aspect of Life Sciences.

4.4. Some learners answered this question fairly well, but some did not. Some thought of plant stems rather than what is referred to in the question paper.

The analysis of marks per question per 100 scripts for this question was 13,

5. ANY ADVICE THAT YOU COULD GIVE TO EDUCATORS TO HELP LEARNERS TO REACH THE EXPECTED LEVELS

1. Learners to be trained on reading the instructions of each question.
2. Learners to be given activities with diagrams, graphs, information in tables and be made to study these before they answer the questions based on them.
3. They must also be given exercises where they are going to draw graphs from the information on tables or transcribe the information in the tables into graphs. They must know which one is the dependant/ independent variable on the graph.
4. They must be exposed to the different types of graphs. Learners must draw diagrams and emphasis must be placed on the correct size of the diagram as well as the captions of the diagram.
5. Teachers and subject advisors must ensure that they share their marking experiences in their respective district and also the chief markers report must be read and interpret for all the teachers in all districts.
6. Teachers must start to prepare grade 12 learners in grade 10 in terms of doing the required scientific investigations.
7. Learners must be well informed that they must not write anything about synthesis when writing the essay. Synthesis means impression marks. This can be done by training learners to understand the meaning of a rubric for marking the essay.

8. ANY OTHER COMMENTS

The general comment was that the question paper was easy and covered all the LO's and AS. Questions were formulated in a simple language which caters for rural learners who use English as a second language.