MAURITIUS EXAMINATIONS SYNDICATE

PSAC 2020

GRADE 6 MODULAR SCIENCE

Subject code: P141/2

Examiners' Report

INTRODUCTION

The assessment in Science is modular in nature and students are required to take the first assessment at the end of Grade 5 and the second part of the assessment in Grade 6. The first part of the assessment covers the content studied at the level of Grade 5 and subsequently the second part of the assessment covers the content studied in Grade 6.

Due to the COVID 19 situation, Grade 6 modular assessment in Science for the year 2020 was based on a 'deloaded' specification. The units 'Earth, Moon and Sun in the Solar System' and 'Ecosystems of forest & lagoons' were not assessed. The paper was over fifty marks and its weighting was 50%. Students were given one hour to complete it.

There are three assessment objectives. Approximately 40% of the marks on the paper are for demonstrating knowledge and understanding of: scientific ideas, scientific techniques and procedures (AO1), another 40% on application of knowledge and understanding of scientific ideas (AO2) and approximately 20% for inquiry skills (AO3).

The examiners' report for PSAC Grade 6 Science offers a constructive feedback on candidates' performance and guidance for future candidates. The contents of the syllabus that gave rise to misconceptions are included in the report, which also highlights gaps in the conceptual understanding of candidates. Other aspects which caused difficulty, along with possible reasons, are also commented on. Key messages are included to draw the attention of Educators on the essential areas to focus on.

This report should be read in conjunction with the question paper for the examination.

PAPER OVERVIEW

The mean mark for this paper was 33 out of 50 marks.

This year's paper consisted of 6 questions. Question 1 contains 5 multiple choice questions (MCQs). Questions 2-6 include objective-type questions as well as short-answer and open-ended questions that enable candidates to demonstrate their knowledge and application of essential scientific concepts.

KEY MESSAGES

- Language still seems to be a barrier for candidates to express themselves in open-ended questions.
- Candidates need to avoid the telescoping of answers for questions requiring two statements.
- Although misspelling of scientific terms was not penalised, candidates are encouraged to practise writing key scientific terms such as *photosynthesis* correctly.
- It is crucial that candidates read questions carefully as they tend to lose marks due to misinterpretation or misreading of questions.

GENERAL COMMENTS

Most candidates showed good grasp of the syllabus content and there was a range of correct responses for the open-ended questions. They started the paper well but found the last questions more challenging. The majority of candidates appeared to have sufficient time to complete the paper.

The knowledge-based items were generally well tackled by candidates. The application of concepts and questions assessing scientific inquiry skills remain a challenge for a majority of candidates at this level.

The weighting of the paper on the AOs 'Application' and 'Inquiry skills' is around 50%. It is, therefore, very important that these skills are developed. Question 6 which was partly on rusting revealed that a good majority of candidates had not carried out the experiment on rusting as there were few correct answers with regard to observations. It is recommended that hands-on activities and experiments be encouraged in class so as to engage learners and develop a better understanding of scientific concepts.

SPECIFIC COMMENTS

Question 1

Question 1 consists of 5 multiple choice questions which ensured a broad coverage of the syllabus.

Table 1

Item Number	*Key*	*% Correct*	*Most common incorrect choice*
1	**B**	**87**	**D**
2	**A**	**79**	**D**
3	**C**	**71**	**D**
4	**A**	**81**	**D**
5	**D**	**85**	**C**

This question was generally well attempted by most candidates. Items 1, 4 and 5 proved to be the most accessible items, allowing most candidates to attempt them correctly. Item 3 proved to be the most challenging one.

Comments on specific items

Item 1 was a relatively easy recall question on materials. Candidates were required to identify the substance which was a metal. The correct answer was 'Gold' and a good number of candidates selected the correct answer, B. This suggests that candidates are well acquainted with identification of metals required at this level.

Item 2 was a knowledge-based question. Candidates who identified A as the correct answer which showed that candidates had a good understanding of the characteristics of an insect and were able to use the diagram to help them find the answer. A significant number of candidates who opted for spider, which was an incorrect answer. Spiders belong to the family of arachnids. One of the differences is that insects have 3 pairs of legs and arachnids have 4 pairs of legs.

Item 3 was a knowledge-based question. Candidates were required to identify the leaf as the part mainly responsible for manufacturing food. Whilst the majority of the candidates could identify C as the correct answer, there were quite a number of candidates who chose D, which was an incorrect answer. Whilst the roots are involved in that they provide water during the process of photosynthesis, they are not the site of photosynthesis. One way to make this clear for students is to explain to them that roots are found in the soil, where they do not receive light and light is an essential factor in the process of photosynthesis.

Item 4 was a simple application question on the topic 'Energy'. Candidates were required to identify the form of energy at the input of a television set. Many overlooked the word input and a common incorrect response was sound energy, which was one of the forms of energy at the output.

Item 5 was about the burning of candles. Options A and B proved to be clearly incorrect for the majority of candidates. This item required candidates to read and understand the question which was supported by a diagram. Many candidates chose candle R as the correct answer as it was covered with the biggest jar ignoring that candle S, which was the correct answer, was not covered and therefore will burn for the longest time as it will receive a continuous supply of oxygen.

Question 2

This question was on the topic 'Animals'. The first part of the question was about balanced meal whereas the second part of the question was about teeth. Candidates fared generally well on this question, with most of them scoring more than 5 out of 10 marks.

Comments on specific items

(a)(i) A good number of candidates could provide a correct food for growth. However, many candidates did not take into consideration that the food for growth required in this question was for a vegetarian. Answers such as chicken, fish, meat were not accepted as correct answers.

(a)(ii) Some candidates provided the definition of a balanced meal instead of mentioning about its importance. Others named the three food groups. The expected answer for this item was 'to be healthy'. This highlights the importance of making clear what examiners expect when words such as 'importance' are given as opposed to what something is.

(b)(i) Many candidates could not differentiate between molar and premolar and wrote premolar/molar. It is to be pointed out that in cases where the choice is left to the examiner, no marks is awarded. It was also observed that many did not pay attention to the instructions and mentioned back, front and pointy teeth instead of using the words from the given list.

(b)(ii) Many got the correct answer by stating that the incisors are used for biting food.

(b)(iii) A good majority of candidates gave the correct answer. Some gave the consequences of not caring for the teeth rather than the actions to be taken to care for the teeth.

(c) Most candidates answered this question well. The most common correct answer was 'Cows eat grass'.

Question 3

(a)(i) This was generally well answered. The vast majority of candidates scored marks for giving oxygen as the correct answer.

(a)(ii) Most candidates answered this question well, showing that the skills required for reading graphs has been well developed.

(b)(i) Candidates were required to give the definition of air pollution. Unfortunately, many stated the causes of air pollution. Some of the candidates gave answers such as 'Air pollution is when the air is polluted.' Such answers are not to be encouraged as they do not provide the required elaboration that needs to include the presence of harmful substances. As pointed out in Question 2, the understanding of key words and their specific expectations has to be reinforced.

(b)(ii) Many candidates did not refer to the diagram to answer this question. It was observed that candidates failed to understand key words like 'examples'. Sources such as 'the bus' and 'the bin' were given as answers instead of 'bad smell from open bin' and 'smoke from the bus'.

(b)(iii) The majority of candidates gave the correct answer by giving answers such as 'carpooling' and 'covering of the bin'. Whilst candidates gave the relevant ideas, they found it challenging to write full sentences or phrases.

(c)(i) Some candidates gave 'oxygen' which was the most common incorrect answer.

(c)(ii) Many candidates failed to score as they gave about 'fire extinguisher' which was already mentioned in the stem of the question. It needs to be emphasized that candidates are advised to read instructions carefully.

Question 4

(a)(i) This was well answered by the majority of candidates.

(a)(ii) Only 40% of the candidates could score the marks on this item. Language seems to be a barrier for many candidates. Some gave a disadvantage of using thermal power station instead of an advantage. Some candidates answer such questions mechanically, for example, thermal stations are associated with disadvantages while use of renewable sources is associated with advantages only.

(b) This was a well-answered question. Although the majority of candidates could identify movement and electrical energy as the forms of energy involved in thermal power stations, there seems to be some confusion about the sequence of the transformation. It should be emphasized that movement energy is produced in the turbine and electrical energy in the generator.

(c)(i) The concept of renewable source of energy seems to be well understood. Yet, many could not score marks as they gave advantages of renewable source of energy rather than answering the question. This shows that candidates tend to look at key words in the question, rather than reading and understanding the full requirements of the question.

(c)(ii) This was generally well answered by the majority of candidates. However, it was observed, as in previous years, the confusion between the word source and form of energy seems to prevail.

(c)(iii) This question proved challenging and many candidates could not score full marks. Whilst they understood that droughts are related to less amount of water, they could not go the extra mile to indicate that lesser water will not allow the turning of the turbine.

Question 5

(a)(i) This question proved difficult for the majority of candidates. They were required to identify a characteristic visible in the diagram. 'Gills' was a very common incorrect answer.

(a)(ii) Most candidates could score full marks and were able to identify 'whale' as the mammal.

(a)(iii) A good majority of candidates could correctly differentiate correctly between the ways of reproduction of the fish and the whale. One striking element was that many candidates used one-word answers such as 'eggs' and 'birth' rather than 'producing eggs' or 'giving birth'.

(b)(i) This was a generally well-answered question, but often wrongly written.

(b)(ii) Many gave only a partial definition for photosynthesis referring to the intake of carbon dioxide and release of oxygen and hence, could not score full marks. It is important that candidates understand that chlorophyll, light and water are essential for photosynthesis to take place.

(c) The majority of candidates gave correct answers and could score two marks. A few candidates lost their marks due to telescoping answers. It was also noted that the weaker ability candidates tend to give one-word answer such as 'medicine' and 'food'.

(d) Many candidates focussed their answers only on plants. The question was about how plants and animals help to maintain a balance in air composition. It seems that many candidates did not understand the wording 'balance in composition of air'. A noteworthy weakness was that many candidates made no distinction between 'breathing' and 'photosynthesis'.

Question 6

(a)(i) This question proved to be very easy given that a list was given and candidates were required to choose from the list. A large majority of candidates scored full marks.

(a)(ii) Whilst many candidates were able to identify one reason, they struggled to find a second reason for aluminium being used to make the body part of an airplane. It was also observed that due to language difficulties, candidates often gave one-word answers. Telescoping was also common in this question.

(a)(iii) Most of the candidates answered this question correctly. However, the word 'characteristics' proved rather difficult for some candidates.

(b)(i) Candidates were required to apply their knowledge of the conditions necessary for rusting to take place. Many could not provide a detailed explanation, but rather gave the two conditions which were air/oxygen and water.

(b)(ii) This question proved challenging for most candidates who were required to write down an observation that they would see when rusting has taken place. Many repeated the conditions required for rusting to take place.

(c) A good majority of candidates could identify ways to prevent iron nail from rusting.

CONCLUSION AND RECOMMENDATIONS

There has been an improvement in the mean mark for the paper compared to the previous year. This is indicative of an increasing number of students being able to tackle the assessment in science better. This also shows that students are getting a better grasp of the scientific concepts studied at the level of Grade 6. Open-ended questions remain a challenge for the majority of candidates and they should be discouraged in class to give one-word answers for questions that require an elaborate answer. It is, therefore, recommended that students be encouraged to practice these types of questions.

Experimentation forms an integral part in the teaching of science. Hands-on experiments and demonstrations are encouraged as they promote observation skills, which are primordial in the learning of Science. Whilst conducting experiments, it is important that the attention of students be drawn to the different variables. A good approach to improve acquisition of scientific terms would be to encourage writing key terms on posters as an activity in class.

Experiments promote learning for all types of learners and linking the skills acquired during an experiment to various scenarios can make students relate scientific concepts to everyday life situations. It is definitely beneficial for students to carry out experiments in science laboratory/room. However, in the absence of a science room, it is advised that a science corner be created so that students have the opportunity to perform the experiments in their textbooks.