Mauritius Examinations Syndicate

National Assessment at Form III

Subject Reports

2012

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GENERAL COMMENTS

The National Assessment at Form III was in its final year of piloting in 2012 and was taken by all state secondary schools and a great number of private secondary schools.

This assessment aims at bridging an important gap in the secondary education sector in Mauritius – the absence of any form of 'checkpoint' between the CPE examinations and the School Certificate examinations. As such, it allows schools, students and stakeholders alike to take stock of the progress in learning which has taken place during the 3 years of lower secondary schooling. It is therefore important to note that it is not meant to be a high-stakes examination, but an assessment to gauge learning gains.

This assessment also sets the standards which students are expected to have reached after studying up to Form III. It allows schools to evaluate their performance against nationally set benchmarks and allows teachers to make adjustments to the pedagogy adopted accordingly. It aims at providing useful information to all stakeholders so that students can be better supported as they progress towards the School Certificate Examinations.

Overall Performance

The assessment is set in languages (English and French), Mathematics, ICT and the core sciences (Physics, Biology and Chemistry). Performance in the 2012 session, on the whole, was below expectations. Although excellent scripts were seen in all subjects, these tended to be the work of a very small minority of students only.

A satisfactory number of students managed to score at least 40% in English, French, ICT and Biology. However, even in these subjects, there is significant room for improvement in the quality of the performances, with the great majority of scripts being of average quality.

The performance of students in Mathematics, Chemistry and Physics was of greater concern. At least half of the students scored less that 40% of the marks in those subjects, suggesting that the majority have not acquired the necessary skills and competencies in these subjects. **Table 1**

shows the percentage of students scoring less than 40%, more than 40% and more than 80% in the different subjects.

Table 1: Performance of students

Subject	% scoring less than 40%	% scoring more than 40%	% scoring above 80%
English	13.1	86.9	17.8
French	23.9	76.1	6.9
Mathematics	57.7	42.3	8.1
ICT	21.4	78.6	8.0
Biology	31.9	68.3	11.0
Chemistry	49.9	50.1	6.4
Physics	52.7	47.3	7.3

Languages (English and French)

The assessment in languages focused on communicative competence – with questions assessing reading comprehension, writing and knowledge of grammar in context. Performance was, on the whole, very average. While the elementary skills were in place, higher order skills were more problematic. Students were able to retrieve explicitly given information from a text, use basic vocabulary, but were unable to write compound and complex sentences. Drawing inferences and writing longer pieces of prose, were found to be very difficult. Problems were noted with syntax, verb tenses and vocabulary with the interference of creole being visible. In longer pieces of writing, only very few students were able to write with flair and creativity.

Mathematics

In Mathematics, the assessment objectives focused on knowledge and understanding of mathematical concepts and problem solving skills. The performance of students was disappointing overall. While basic computations were generally well done, it was noteworthy that an important number of students struggled with some elementary mathematical concepts, like the laws of indices and factorisation. In addition, algebra was particularly problematic to a

significant number of students. Higher order skills, like solving word problems and dealing with application problems, were only visible in a minority of scripts.

Sciences (Chemistry, Physics and Biology)

The Science papers focused on three assessment objectives – knowledge with understanding, handling information, problem solving and scientific investigation. The performance of students in the Science papers was generally below expectations. Questions assessing direct knowledge and understanding were fairly well tackled, but it was noticeable that some basic scientific concepts posed problems to students (e.g knowledge of terms like 'atom' and the ability to write and balance chemical equations, as well as knowledge of scalar and vectors and properties of light). Questions which required students to explain their reasoning in longer pieces of writing or that required an application of their knowledge were also beyond the reach of most students.

Computer Studies/Literacy

The ICT assessment mainly tested students' knowledge of concepts in computing and computing skills. The performance of students was broadly satisfactory, although only a small number scored above 80%. It was noticeable that students performed better on questions requiring knowledge of Microsoft Word and Spreadsheet than on questions on Database and System Flowchart. This can be explained by the fact that they commonly use the former two application packages in their everyday lives and, thus, find more relevance in them than in the latter two.

Key Messages

- Students are advised to read questions with more care. Far too often marks are lost when not enough attention is given to the instructions.

- In languages, it is important that all skills are developed, even if those are not formally assessed. Listening and speaking contribute to the acquisition of language and should be present in the classroom.

- In Mathematics, students should be encouraged to construct meaning in a logical manner. Emphasising the multiple ways in which concepts or skills are interconnected (subtraction being the 'inverse' of addition or multiplication being the process of 'repeated addition'), for instance, can help to consolidate students' understanding of mathematical operations.

- In Sciences, Educators are encouraged to relate the topics being taught to real life situations as much as possible. Hands-on practical activities will also enhance the learning experience of students and contribute to deeper understanding of scientific concepts.

- Educators are also encouraged to give opportunities to their students to develop their skills of scientific inquiry. This would help them cope better with open ended questions and questions where they are required to explain their reasoning.

- In Computer Studies/Literacy, students should be encouraged to link theory to practice and vice versa. Theory classes interspersed with practical activities will help students make sense of the technical terms used to describe the features in the different Application Packages.

ENGLISH

General Comments

The general performance of students in the National Assessment was satisfactory. 86.9% of the students scored more than 40% of marks. The bar chart in **Figure 1** represents the performance of students in English for each mark range.

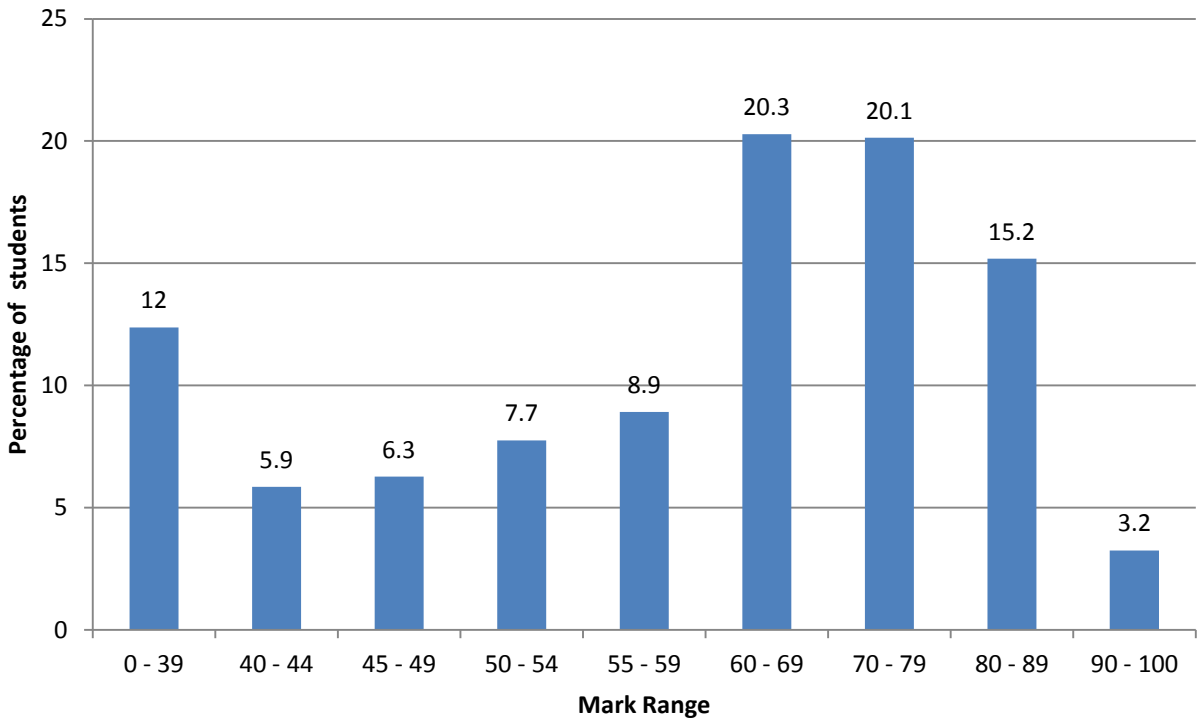

Figure 1: Students performance in English

Students had to attempt all the 9 questions contained in the two sections of the paper which aimed at assessing

- reading comprehension at different levels (from the direct location of information to making inferences),
- usage of appropriate and varied vocabulary,
- writing grammatically correct simple and complex sentences,
- knowledge and application of grammar in context,

- the production of longer pieces of prose (narrative and non-narrative) logically and creatively.

The qualitative analyses undertaken reveal that only a handful of candidates were able to master the above skills. The majority of candidates mostly demonstrated basic literacy skills. While vocabulary and grammar remain a challenge to a large number of students, a few were able to produce commendable pieces of writing.

Specific comments

Section A- Reading Passage (40 marks)

Questions 1 and 2

The information passage on Louis Braille proved more difficult to candidates than the narrative passage. The main ideas of the informative text were not easily grasped by a majority of students. In both comprehension passages, questions requiring direct understanding and retrieval of explicitly stated information were better tackled than those requiring inferences or knowledge of less common vocabulary items.

In passage 1, items **1(c)** and **1(d)** were the most well answered.

For item **1(a) (ii)**, many students were unable to retrieve the correct sentence that allowed them to find the correct answer for part **(a) (i)**.

Item **1(b)** was found difficult by an important number of students. Most of them provided "The school for the blind" as the most suitable title for the text instead of the correct answer "The invention of the Braille system".

As mentioned above, questions requiring inferences from the passage namely **1(g)** and **1(i)** were handled with difficulty by a large number of students. Less than 50% of the students were able to attempt these questions correctly.

It is to be noted that many students provided indiscriminate lifting for item **1(f)**, resulting in loss of marks.

In passage 2 entitled "My Black Belt Test", the majority of students correctly answered items **2(a) (i) and (ii).**

Item **2(b)** was equally well attempted by many students who gave the correct word "passion" which describes how much the author really enjoyed karaté.

As for the informative passage, inference questions, namely items **2(d) and 2(e)**, proved difficult for a large number of students

Vocabulary question **2(g)** was successfully attempted by a fair number of students. A noticeable number of students found the words '**steadily'** and '**overwhelmed**' most difficult to explain.

Items **(h)**, **(i)**, and **(j)** of question 2 were satisfactorily tackled by the students.

Section B- Grammar and Writing (60 Marks)

Question 3

This question required students to rewrite a given sentence into the singular present tense form. Of the 5 changes that needed to be operated, only a few students were able to make all necessary changes. Students should be trained to check word transformation in relation to subject, object and verb agreement. Many students re-wrote the given sentence, others wrote the sentence in the past tense. Some common mistakes are given below:

While playing, a girl slips and fells/felled in the mud…

She was not hurt but her dress gots dirty.

She was not hurt but his dress get dirty.

She were not hurt but his dress got dirty.

While playing, a girl slips and fell in the mud. They were not hurt but their dressed got dirties.

They was not hurted but our dress gots dirty.

Question 4 – Punctuation

This question required students to punctuate a given sentence. Less than half of the students were able to make the required changes. Many students did not pay attention to the instructions and provided instead a response to the sentence given. Others changed only the first letter into a capital letter. Many students overlooked the importance of inverted commas as a punctuation rule for direct speech.

Question 5 – Spot the mistakes

Question 5 was a letter split into two parts containing mistakes which students had either to correct or to spot by themselves and then correct. In the first part of the letter the mistakes were underlined. A significant number of students scored full marks in **5A** but a majority could not spot all mistakes in **5B**. The most common error that was overlooked by students in **5B** was *'too'* in the sentence ***'****Therefore, we did not go to close to them.'*

Question 6 – Direct/Indirect Speech

The use of direct and indirect speech remains a challenge for the majority of students. Only a small number attempted this question well. The basic rules of direct and indirect speech stipulate that:

- the adverbs of nearness should be transformed into those of distance
- the tense of the verbs in the reported speech or indirect speech must be generally changed.

Therefore, changes whereby *'next day'* becomes *'tomorrow'* or *'would'* had to be transformed into *'will'* were disregarded by a significant number of students. It should be reiterated that the pertinence of direct and indirect speech arises when students are to include a dialogue in their essay. It has been noticed that students who performed badly in this question were not able to

apply the correct use of direct and indirect speech in their essay. Only a handful of students managed to score full marks in this question.

Question 7 – Writing the correct form of words in brackets

This question was the best answered in this Section. However, in item 4, in the sentence *"The crowd has been _____ (amaze)",* the majority of students, opted for *'amazed'* as answer instead of *'amazing'*. The most common mistake in this exercise was item 1 where students provided *'doubting'* instead of *'doubtful'* as answer for the sentence *"Bolt was _____ (doubt) about his fitness and his form".*

Question 8 - Diary Entry

Students were assessed on the relevance of Ideas, Language and Creativity. Almost all students scored high marks for 'Relevance' but for 'Creativity' very few scored high marks. As far as 'Language' is concerned the influence of French and Creole was prevalent, especially in syntax and vocabulary.

The most common idea for Question 8 was about a budding love relationship. Among the best compositions there were those describing an unexpected encounter, or students who talked about helping the neighbour whose bicycle fell in a lake and eventually becoming friends or writing about borrowing money from the new neighbour. Some students produced coherent pieces of writing where their impressions, personal opinion and feelings about the new neighbour were very well described. A thorough introspection of one's feelings using appropriate vocabulary is the main element of a diary entry.

Question 9 – Essay Writing

Students were assessed on four criteria namely: General Impression, Vocabulary, Organisation and Language. Out of the four choices given, the narrative topic was the most popular. It is worth mentioning that some students were able to spot mistakes in Question **5B** but made the same mistakes in their essay. The majority of students showed a lack of proficiency in language (poor vocabulary, inability to sustain verb tenses, failure to use compound/complex sentences properly, mother tongue interference and wrong use of preposition).

It was noted that bad performance in 'Language' impacted negatively on the other criteria. A handful of students did not attempt this question.

The interference of Creole and French in continuous prose remains problematic. A few examples are given below:

I came to you and enter friend with you…

She fall of so much making confiante to all people.

We all know that he is lying to us because he has still 14 years old…

my mother say to me I will surprise you brother. I say ok…

Many students struggled to maintain the correct use of tenses throughout their work. The wrong use of verb tenses mainly the past continuous, past perfect and past participle was a hindrance to the logical flow and coherence of the essays. Some examples are given below:

I was not wanted to go…

..because if I has failed my exams…

My mother would cried…

She ask me twice…

We were lived in a small house…

I tried to bought…

..that you have play…

Other mistakes demonstrating lack of proficiency in the use of English are: *'will'* instead of *'we will', 'tought'* instead *of 'taught'* or immediate translation from their mother tongue. The use of direct and indirect speech was not done appropriately as shown in the essay below entitled: **"A surprising day"**

Today is my birthday but I was forgoten that today is my birthday. I see all the my family decorating the house. I asked

my mother "why are you decorate the house something special" my mother tell my father "I think he forget that today is his birthday that is the good chance to give him a surprise and my mother told my father to take me roaming" my father take me to do shopping because I like to do shopping at about six o'clock at evening I came back. I was surprise all family was already surprising me. My mother told me that today is my birthday I go fourteen year today. My mother was already prepare a beautiful cake for me in my favorite colour blue. Today is my surprising day. I will never forget.

It must be pointed out that such essays were often overmarked. Many students lost marks on creativity as most often this narrative question described a birthday celebration.

Below are examples of very good essays which scored high marks and were interesting to read. What makes the difference is the mastery of language, the rich vocabulary and the creativity.

Describe a person who is very special to you and say why he/she is special.

My teacher, Mrs Fox, is someone who is very special to me. She not only taught me lessons but also how to live life. She is the reason why I have so much confidence in myself, when someday, I was totally opposite to that.

My teacher considers her students as her children and if ever one of us falls sick, she rushes to visit him at home. Mrs Fox always cheers us when we are depressed during examinations. She gifts us many toys when we succeed with fruitful dividends. She always has a smile on her lovely face but behind it, I can sometimes spot post miseries which have made her embrace life now. Her evergreen smile, though it hides those untold pains, but her blank eyes are ample proofs that she is always disturbed about something.

Two weeks before the last term examinations, I met with an accident and my leg was plastered. Originating from a modest family my father could not afford for a wheeling chair and I had to be glued on my bed. The day I was discharged from hospital, while I was lying on my bed, starring at the lizards' activity on the walls, Mrs Fox paid me a surprise visit. From her facial expression, I would judge that she was sorry for my state but when I saw her, I lost my composure after which I had a lachrymal effusion. Mrs Fox scurried to take me in her arms before asking why I was flowing rivers of such precious tears.

Awakened to the reality that I was regretting as I would miss my examinations, she told me not to worry as everything would be fine. The next morning, she came with a wheeling chair and I was so grateful to her that I could not tire myself from thanking her. As from that day, she regularly came at my house to give me revision exercises after school. I never thought that she cared for me so much and unknowingly, she became the person which is the most special to me today.

Write a story which ends with the following sentence: "I wish I had not told my friend that secret".

Among the best essays for this essay title, there were those describing an adoption/illness that should not have been revealed. Many students ignored the instruction of ending their essay with the sentence given. Below is an example of an essay that scored high marks.

After long days and nights that I waited, there came a friend with whom I could share my secrets. Angeli, my rescuer, a nice trustworthy person. I trusted her the most.

My greatest secret of my life was that I knew who killed my father. I was forced to remain quiet like an image which could

not utter a word. If the name of that person would come out o my mouth, he would kill my mother and I would be an orphan. Every minute of my life was painful and I was dying to tell someone of that secret.

At school, I then met Angeli. We became best friends on earth, just like sisters. One day, she told me that she noticed that I was always depressed and wanted to know the reason. At that moment, I did not hesitate to relate everything. She was shocked as that person was her favourite uncle.

Now, she was twice depressed as me. Tears rolled down her cheeks ad she ran away. She went directly to the police station and exposed her uncle. Now the secret was out and I remained with my mother all the time to protect her. My mother was relieved that justice has been made. I did not know that the secret would create problems to some persons.

One day my mother and I went to Angeli's home. She has changed. She was skinny and has a sick person-appearance. She was missing her uncle but most important was that she did not know the fact that her uncle was a crimal. Poor her, I wish I had not told my friend that secret.

MATHEMATICS

General Comments

The overall performance of students on the Mathematics Paper was very average with 57.7 % of the students scoring less than 40 marks. The mean mark for the paper was 37.5. **Figure 2** below provides a summary of the performance in Mathematics with the percentage of the students for each mark band.

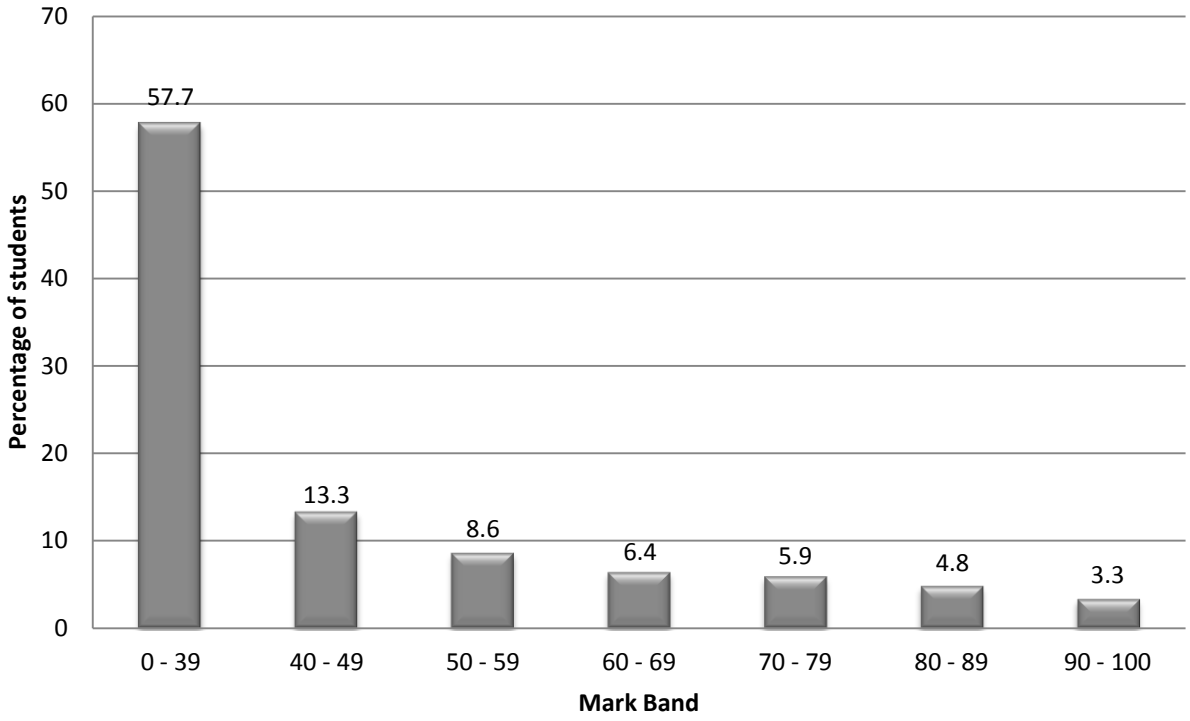

Figure 2: Percentage of students for each mark band in Mathematics

A small proportion of students produced excellent pieces of work and displayed firm mastery of the mathematical concepts learned. Only few students managed to score high marks and demonstrate a mastery over the entire syllabus, which explains the low percentage of students in the 90-100 mark band.

It was noticeable that many basic concepts necessary to sustain learning in Mathematics were not grasped by a significant number of students. It was also noted that many students could

not recall basic mathematical formulae such as those to calculate the gradient of a line, the length of an arc, the area of a sector and the volume of a cylinder.

In a large number of scripts, questions on algebra were not attempted. Among those who attempted questions pertaining to algebra, many showed little mastery in algebraic manipulations.

Qu.1, Qu.2(b),(c) , Qu.3, Qu.4(a), Qu.6(a), Qu.7(b) and **Qu. 11(a),(b)** proved to be scoring questions. Generally, even high achievers struggled with **Qu.16(a)(ii), Qu.17(a), Qu.18(b), Qu.19(a)** and **Qu.19(c)(ii).**

Comments on Specific Questions

Question 1

This was a well answered question in general.

In part **(a)**, some students obtained the correct answer using prime factorisation. Wrong answers such as $\sqrt{8}$, 8^2 and 8×8 were found in some scripts.

In part **(b)**, a significant number of students divided 24 by 6 first to obtain 4 and then subtracted 2 from 4. Numerical slips, such as 6 – 2 resulting into 3, were seen in some scripts.

Question 2

Part **(a)** was not well answered. The wrong answer 68.7 was very common. This was obtained by shifting the decimal point to the right by one figure. Other wrong answers such as 6.8, 6.97, 69.7 and 0.687 were quite often seen.

Part **(b)** was generally well answered. Some students multiplied 4.3 by 100. Dividing 4.3 by 1000 was seen in some scripts.

Part **(c)** was the most successful question in this paper.

Question 3

The majority of the students did well in this question including those who ended up scoring low marks on the paper.

Question 4

Part **(a)** was well attempted by many.

The wrong answer y^{40}, in part **(a)(i)**, was very common. In part **(a)(ii)**, a considerable number of students gave x^{10} or x^{21} as answer.

A large number of students did not score any mark in part **(b)**. The wrong answer $\begin{bmatrix} 20 & 2 \\ -3 & 6 \end{bmatrix}$, obtained by simply multiplying the corresponding entries in both matrices, was very often seen. Another common mistake was to add the 2 matrices to obtain $\begin{bmatrix} 9 & 3 \\ -2 & 5 \end{bmatrix}$.

Question 5

This question was not well answered by a large number of students.

In part **(a)**, some students ignored the scalar 2 in $2\underline{\boldsymbol{q}}$ and simply added $\begin{pmatrix} -8 \\ 6 \end{pmatrix}$ to $\begin{pmatrix} 5 \\ 4 \end{pmatrix}$. The wrong answer $\begin{pmatrix} -18 \\ 14 \end{pmatrix}$ or $\begin{pmatrix} -2 \\ 14 \end{pmatrix}$ was quite common among low ability group. These students wrongly evaluated -8 + 10 as -18 or -2.

Part **(b)** was not attempted by many students. A common mistake was to take the value of $(-8)^2$ as - 64.

Question 6

Part **(a)** was generally well done. Some students missed a minus sign when substituting the value of *b,* thus obtaining 2×5 - 3 instead of 2×5 - (- 3).

A large number of students were unable to score in part **(b)**. Many factorised the expression partially to obtain $y(7y + 21)$. The wrong answer $28y^3$, resulting from the addition of the

coefficients 7 and 21 and the multiplication of y^2 by y, was commonly seen. Other wrong answers such as $28y^2$, $7y(y+3y)$, $7y(y-3)$ and $7(3+y)(3-y)$ were also found in some scripts.

In part **(c)**, sign error resulting into $2x^2+7x+15$ was very common. Another common wrong answer seen was $2x^2-15$ which was obtained by multiplying $2x$ by x and -3 by 5. Some students performed the expansion correctly to obtain $2x^2+10x-3x-15$ but then wrongly evaluated $10-3$ as -7 to obtain $2x^2-7x-15$.

Question 7

Only a small number of students were successful in part **(a)**. Many students, including some from the high ability group, listed the elements of $P \cap Q$ thus obtaining {*e, f, g*} as answer. Some students included the element a to obtain $\{a, c, d\}$ as answer.

Part **(b)** was generally well tackled and was accessible to the majority of students.

Question 8

An important number of students, especially those who struggled overall did not attempt this question. The elimination method was used by most of the students. After equalising the coefficient of one of the 2 unknowns in both equations, the wrong operation was often used while eliminating that unknown, that is addition instead of subtraction or vice versa.

Question 9

Generally, this question was not well answered. In part **(a)**, quite a large number of students, who knew that $\tan x^\circ = \frac{opposite}{adjacent}$, were unable to identify correctly the sides of the triangle in terms of adjacent, opposite and hypotenuse. Some students used $\tan x^\circ = \frac{opposite}{hypotenuse}$ or $\tan x^\circ = \frac{adjacent}{opposite}$.

In part **(b)**, the use of the wrong trigonometric ratio was frequently seen. Some students calculated the length of LM instead of MN. Some students went wrong in the multiplication of 0.866 by 20 and obtained 1.732 instead of 17.32.

Question 10

Quite a large number of students did not attempt the question in its entirety.

In part **(a)**, a significant number of students obtained the wrong answer $y = \frac{q-p}{5x}$ following from $5xy = q - p$. Those students did not change the sign when bringing the term $5xy$ to the left hand side. Some students transposed x instead of y.

In part **(b)** a large number of students calculated only the gradient of the line and stopped there. Calculation of the gradient using $\frac{x_2-x_1}{y_2-y_1}$ instead of $\frac{y_2-y_1}{x_2-x_1}$ was frequently seen. Some students used the correct formula for gradient of a line to obtain $\frac{1}{4}$ but then took the value of the fraction $\frac{1}{4}$ as 4.

In some scripts the equation of the line was given as $y = \frac{1}{4}x + c$ but the value of c was not calculated. Many students, even those at the top end, were unable to score full marks because they encountered difficulty with the subtraction of fractions while calculating the value of the *y*-intercept c.

Question 11

A significant number of students managed to score some marks in this question.

In part **(a)**, calculating the percentage increase as $\frac{5000}{25000} \times 100$ or $\frac{20000}{25000} \times 100$ were the most common errors.

In part **(b)**, some students simply divided 60 by 5. Calculating the length of the shorter piece instead of the longer one was seen in some scripts. Some students took the length of the longer piece as $\frac{2}{3} \times 60$.

In part **(c)**, the most common error was to calculate 20% of 400, which equals to 80, and then to subtract 80 from 400. A significant number of students added 80 to 400.

Question 12

The whole of this question was left unattempted by several students.

In part **(a)**, expanding $3(5x-2)$ as $15x-2$ and $4(x-1)$ as $4x-1$ were often seen.

Not reversing the inequality symbol when dividing by -2 was the most common error in part **(b)**. A significant number of students missed the negative sign in front of $2x$ after bringing 5 to the right hand side of the inequality, thus obtaining $2x > 21-5$ instead of $-2x > 21-5$.

Question 13

An important number of students failed to score marks in part **(a)**, despite the fact that this question assessed a basic mathematical concept. The main reason was the inability to recall the formulae for calculating length of arc and area of sector. In part **(a)(i)**, many students used $\frac{x}{360} \times \pi r$ instead of $\frac{x}{360} \times 2\pi r$. The use of $\frac{x}{360} \times 2\pi r^2$ instead of $\frac{x}{360} \times \pi r^2$ was common in part **(a)(ii)**.

In part **(b)**, some students wrote $\frac{18}{360}$ instead of $\frac{360}{18}$. Some students divided 180 by 18.

Question 14

In general, this question was not well answered for the following reasons:

In part **(a)**, many students obtained the wrong answer 312 from 360 – 48. Some of those students indicated the angle representing the bearing of Q from P correctly on the diagram but went wrong in its calculation. They assumed that the pair of co-interior angles is equal.

In part **(b)**, many students were inaccurate in their measurements.

Question 15

Generally, students scored well in this question across the whole ability range.

In part **(b)**, some students wrongly equated the sum of the angles in the pentagon to 360^0.

Question 16

The whole question was left unattempted by a significant number of students although part **(a)(i)** should have been within the reach of most of them.

The majority of the students struggled with parts **(a)(ii)** and **(b)**. Even those at the top end were unable to score in part **(a)(ii)**.

Question 17

In general, this was not a well answered question. Many students did not attempt the question in its entirety. Some students did not attempt part **(a)**, but scored well in parts **(b)** and **(c)**.

In part **(a)**, the most common errors were the expansion of $(x+1)^2, (2x+5)^2$ and $(2x+4)^2$ as x^2+1, $4x^2+25$ and $4x^2+16$ respectively. This mistake was found even in some scripts scoring high marks.

Question 18

Part **(a)(i)** was quite well answered.

Some students who answered part **(a)(i)** successfully, did not realise that they had to use the answer from this part to answer part **(a)(ii)**. Some students reached up to $12(x+y)=456$ but did not go further to find the value of $(x+y)$.

A large number of students did not attempt part **(b)**. In general, only very good students scored full marks in this part. Some students, after obtaining 176 for the volume of 1 cylinder, equated it with a wrong formula for volume of a cylinder. In most cases that wrong formula was $2\pi rh$ or $2\pi r$. Some students reached up to $r^2=4$ but did not go further to calculate the value of r.

Question 19

This was not a successfully answered question. Parts **(a)** and **(c)(ii)** were the two least well answered questions of the whole paper even for those who ended up scoring high marks on the paper.

In part **(a)**, most of the students, including a significant number of those at the top end, simply divided 230 by 10 to obtain 23 which represents the number of intervals only. They did not consider the fact that the number of trees would be one more than the number of intervals.

In part **(c)(ii)**, only a small percentage of the students understood that the number of terms before and after the median must be equal. Hence, they recognized that, after arranging the values in ascending order, the 4^{th} 2 must be taken as the median in order to obtain the greatest possible value of x.

FRENCH

Commentaires généraux

Dans l'ensemble, la performance a été satisfaisante avec une moyenne générale de 51%. 76.1 % des étudiants ont pu obtenir au moins 40 % des points du questionnaire. Le graphique ci-dessous donne un aperçu de la performance générale:

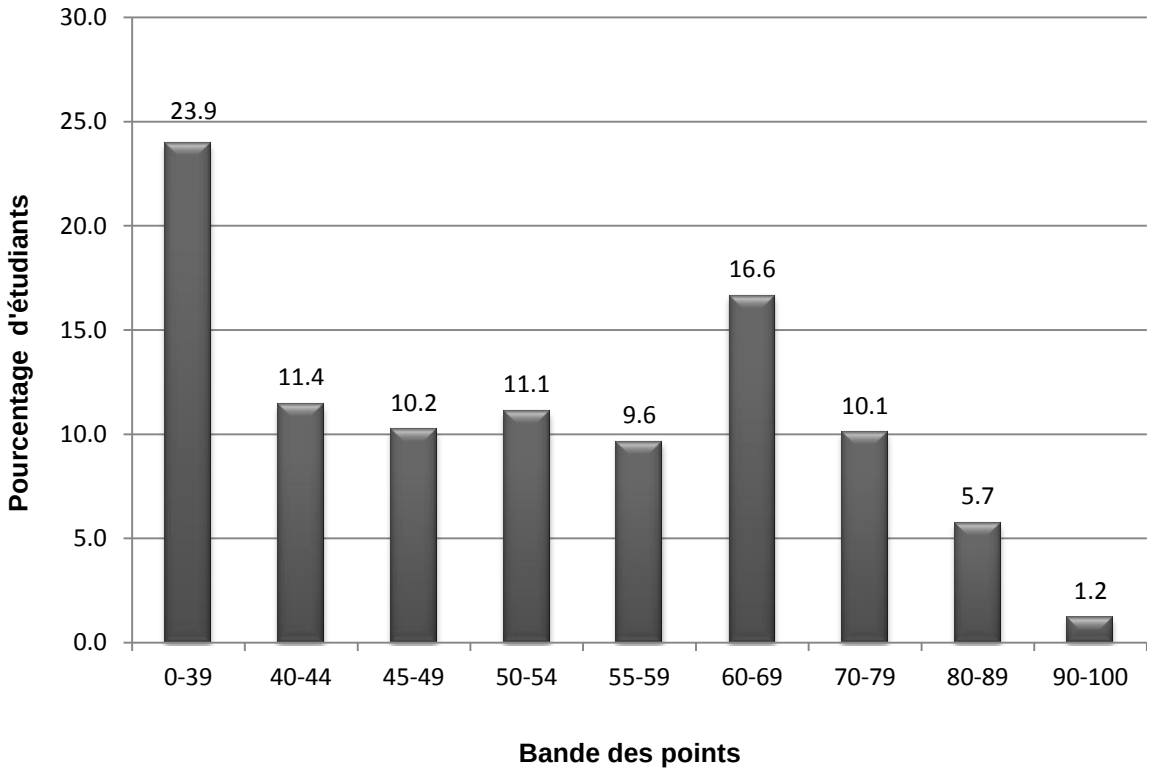

Figure 3: Performance des étudiants en français

Le questionnaire comprend deux sections. La Section A évalue la lecture compréhension et la Section B l'application de la grammaire et la production écrite (phrase et texte).

Dans la Section A, le texte informatif a été plus abordable que le texte narratif. Ce sont les questions d'inférence, de déduction et d'analyse critique requérant un avis personnel ou la mise en relation de deux ou plusieurs informations du texte qui ont posé problème. Pour ces

questions, on a constaté que les étudiants cherchent absolument à trouver la réponse dans le texte et à recopier des phrases qui n'ont aucun lien avec la question posée.

Dans la Section B, des étudiants (même ceux fréquentant les collèges nationaux) ont rencontré des difficultés au niveau de l'application de la grammaire (les temps verbaux, les accords, l'identification et la correction des fautes d'orthographe). En ce qui concerne la production écrite, on a noté les mêmes lacunes.

Commentaires spécifiques

Section A : Lecture - Compréhension (40 points)

Question 1

Les étudiants devaient démontrer leur compréhension d'un texte informatif sur le thème de l'écologie marine.

Dans l'ensemble, la performance a été satisfaisante et de nombreux étudiants ont pu répondre aux questions.

Les items 2, 3, 4, 5, 9 et 10 ont été bien travaillés.

Les items 6, 7 et 8, essentiellement des questions d'inférence, ont été problématiques. Certains étudiants ont eu des difficultés à établir des liens entre une et plusieurs informations du texte pour construire une compréhension globale.

L'item 1 a été le moins bien travaillé.

Item 1

La réponse attendue était "*Le Sommet de la Terre*". Peu ont obtenu une note à cette question car la plupart ont copié la phrase du texte dans son intégralité: "*Au Sommet de la Terre qui s'est tenu en 1992 à Rio de Janeiro au Brésil, le 8 juin de chaque année a été proclamé Journée des océans.*" Cette phrase contient plusieurs informations et la copie de toute la phrase ne démontre pas si l'étudiant a bien compris ce qui lui est demandé. Il est important de répondre à la question posée de façon claire et précise.

Item 7

Ceux qui ont bien répondu à la question ont su faire le lien entre la phrase "*80 % de la pollution des océans provient des terres*" et la phrase suivante: "*Une immense plaque de déchets a été localisée, flottant dans l'océan Indien. Elle est composée de bouchons de bouteille,..., fragments de plastique*".

Item 8

Plusieurs étudiants ont pu identifier que la plaque est composé de déchets plastiques non dégradable mais peu ont pu expliquer l'analogie au '*Continent*' bien que l'adjectif qualificatif '*immense*', faisant référence à la taille, le dénote clairement dans le texte.

Question 2

La compréhension du texte narratif a posé quelques problèmes et la performance a été moyenne.

Les items 2 et 8(i) ont été bien travaillés.

Les items 3, 5, 6 et 7 ont été moyennement bien travaillés.

Les items 1, 4, 10 et 11 ont posé beaucoup de difficultés. Peu de bonnes réponses ont été notées.

Pour les questions à plus d'un point (ex. items 4, 6 et 10), les étudiants n'ont pu obtenir la totalité des points. Souvent, un seul élément de réponse a été donné. Il faut noter que 2 points sont attribués non parce que la question est difficile mais parce que 2 éléments de réponse sont attendus.

Item 1

Un nombre important d'étudiants a copié toute la phrase du texte ou a donné comme réponse que les habitants fabriquaient de l'huile et du savon. "*qui servaient à fabriquer de l'huile et du savon*" invalidait la réponse.

Item 4

Même si la majorité a pu expliquer la comparaison par le fait que Kenneth est agile ou qu'il utilise une corde, un grand nombre a donné une seule raison et non deux.

Item 10

Les étudiants devaient donner leur opinion en se basant sur leur lecture du texte. Plusieurs ont répondu en donnant une seule raison, la plus récurrente étant "*Il n'y a pas de médecin ou d'hôpital sur l'île*".

Item 11

Pour *cet* item, il était impératif de donner le mot ou groupe de mot ayant le même sens que le(s) mot(s) donné(s).

(i), (iii) et (v) ont été moins bien réussis.

(i): de nombreux étudiants ont donné "*l'une des quatre-vingts îles de l'archipel*" ou "*quatre-vingts îles*" comme réponse au lieu d'"*archipel*". Aucune note ne leur a été attribuée.

(iii): "*dextérité*" qui appartient à la même catégorie grammaticale que "*habileté*" est la bonne réponse et non "*agile*" qui est un adjectif et qui a été choisi par beaucoup d'étudiants.

(v): "*alité*" a souvent été donné comme réponse au lieu de "*recroquevillé*".

Section B : Grammaire et Production Ecrite (60 points)

Question 3 – Réécriture

Cette question comprend deux items de réécriture. Dans l'ensemble, un faible nombre d'étudiants les ont réussis et, même si en général les étudiants ont pu repérer les éléments de grammaire à modifier, peu sont parvenus à les transformer et les orthographier correctement.

Item (i)

L'étudiant devait remplacer '*les étudiantes*' par '*le jeune homme*'. La réécriture entraînait 5 opérations de transformation.

Il a été moins difficile de trouver l'adjectif '*ingénieux*' et les verbes '*est promu*' et '*a été récompensé*'.

Le changement de '*leur*' à '*sa*' a été le moins réussi par méconnaissance du genre du nom '*persévérance*' qui a été pris pour un nom masculin par la majorité des étudiants.

Pour la transformation du démonstratif, dans de nombreuses copies '*Ce-ci*' et '*Ceux-ci*' ont été relevés au lieu de '*Celui-ci*'.

Item (ii)

Les étudiants devaient réécrire un texte, du futur au passé composé. La réécriture entrainait 5 opérations de transformation verbale.

On a constaté que les verbes élémentaires couramment utilisés, comme '*acheter'*, '*prendre'* et '*aller'*, ont donné du fil à retordre aux étudiants. '*Acheté*' a été incorrectement orthographié '*achété' ou* '*achète'*, l'accent posant problème.

Le verbe pronominal se '*réjouir'* et le verbe irrégulier '*rejoindre'* ont posé encore plus de problèmes. Beaucoup d'étudiants ont donné '*rejouiré'* et '*rejoindé'* comme participe passé.

Dans beaucoup de cas, pour les verbes *se 'réjouir'* et *'aller',* l'accord du participe passé n'a pas été fait ou a été mal fait. Dans de nombreuses copies, '*sommes*' a été écrit sans le 's' et le verbe '*aller'* a été conjugué avec l'auxiliaire avoir.

Question 4 – Ponctuation

Pour cette question portant sur la ponctuation et l'utilisation des majuscules, la performance a été moyenne.

La plupart des étudiants ont pu identifier qu'il s'agissait d'un discours direct et ont su placer les guillemets. Très peu ont mis les deux points précédant nécessairement les guillemets. Seule la moitié des étudiants ont écrit '*Quelle'* avec une majuscule, ont mis une virgule après l'adjectif '*Emerveillé'* qui débute la phrase et un point d'exclamation à la fin.

Les exemples suivants donnent un aperçu des lacunes concernant la ponctuation :

Emerveillé, papa s'exclama «quelle belle vue ».

« Emerveillé Papa s'exclama ! » Quelle belle vue.

Emerveillé, « Papa s'exclama » quelle belle vue.

Emerveillé papa s'exclama ! quelle belle vue.

« Emerveillé ! Papa s'exclama quelle belle vue ».

Emerveillé, « Papa s'exclama ! » Quelle belle vue ?

Question 5 - Transformation de mot

Dans l'ensemble, la performance a été satisfaisante et plus de la moitié ont pu effectuer les 3 transformations suivantes correctement: '*tranquille', 'vue'* et *'beauté'*. Beaucoup n'ont pas mis l'adjectif '*dangereux*' au féminin malgré la présence de l'article défini '*la*' devant '*baignade*'. Le nom '*entrée*' a été orthographié sans 'e' dans beaucoup de copies et c'est cette transformation du verbe (entrer) en nom (entrée) qui a posé le plus de problèmes.

Question 6 - Orthographe Lexicale et Grammaticale

La question 6 est divisée en deux parties. Les étudiants devaient corriger deux courts textes contenant des erreurs d'orthographe (lexicale et grammaticale).

Généralement, la question a été moyennement bien travaillée. Les étudiants ont mieux réussi la première partie sans doute parce que les erreurs étaient déjà signalées. Pour la deuxième partie la performance a été peu satisfaisante dû au fait que les étudiants devaient eux-mêmes identifier les erreurs et les corriger.

Item (i)

Nombreux étudiants ont trouvé la bonne orthographe de '*cueillir*', '*était*' et '*agitant*'. Peu de bonnes réponses ont été notées pour '*demie*' et '*violemment*'. Pour l'adverbe '*violemment*', l'élément le moins bien réussi, plusieurs ont maintenu le 'a' au lieu de l'orthographier avec un 'e' sans doute influencés par la prononciation du mot. Des confusions persistent sur l'accord de l'adjectif '*demi*'.

Item (ii)

Les étudiants ont trouvé cette épreuve très difficile. En général, très peu ont pu identifier les erreurs. Pour cet exercice, il est impératif que les étudiants soient attentifs au sens et aux autres éléments/ indices de la phrase. Peu ont identifié et corrigé '*grelottait*' et '*tant*'. Peu ont pu écrire '*vêtements*' convenablement, la majorité s'étant trompée d'accent.

Question 7 – Syntaxe

La question 7 évalue la construction syntaxique. Les étudiants devaient compléter le début ou la fin d'une phrase complexe. La performance a été moyenne et peu d'étudiants ont pu obtenir la note maximale par item.

Les items (i), (ii) et (iv), où la fin des phrases devait être complétée, ont été moyennement bien travaillés.

Les items (iii) et (v), où le début des phrases était manquant, ont posé beaucoup de difficultés. Peu ont réussi la construction avec le pronom relatif '*dont*'.

Le temps verbal et l'orthographe grammaticale ont posé de gros problèmes.

Question 8 - Production Ecrite

Dans l'ensemble, la performance est peu satisfaisante. Seul un tiers des étudiants a obtenu la moyenne.

Les étudiants devaient produire un court texte de type narratif, descriptif ou argumentatif. L'évaluation portait sur l'impression générale (le traitement du sujet), le vocabulaire, l'organisation du texte et la langue (grammaire, orthographe, ponctuation).

Impression générale

> On a constaté qu'un grand nombre de récits, bien que complets, étaient élémentaires. Ceux qui ont obtenu la note maximale ont produit un récit bien développé et intéressant avec des détails ou des arguments pertinents.
>
> Il faut aussi noter que beaucoup d'étudiants ne font pas de distinction entre les différents types de rédaction.
>
> On a également constaté que certains étudiants ont commencé à rédiger le sujet (i) en racontant la rencontre avec la vielle dame, ont enchainé avec le sujet (ii) en narrant la découverte de la maison et l'installation de la dame dans la maison et ont terminé par le sujet (iii) en donnant quelques conseils pour rester en bonne santé.

Les instructions doivent être bien lues.

Sujet (i)

La majorité des étudiants ayant choisi la rédaction narrative n'ont pas commencé le récit par la phrase déjà donnée. Les verbes "*pleuvait*" et "*me suis approché*" plaçait l'écriture dans un passé récent. Cependant, certains étudiants ont poursuivi le récit au passé simple. Par exemple:

> *Il pleuvait. En voyant la pauvre vieille dame assise sur le trottoir, je me suis approché d'elle. "Bonjours" l'aurais-je dis. "Bonjour ma fille" elle me reponda....Je lui donnai….Je lui dis…*

En outre, les étudiants mélangent le présent, le passé composé, le passé simple et le plus que parfait dans la narration, rendant ainsi le texte maladroit et incohérent et la lecture difficile.

Sujet (ii)

Il s'agit d'une description mais beaucoup d'étudiants ont produit un récit narratif.

Sujet (iii)

Des étudiants moyens ont été nombreux à choisir ce sujet de type argumentatif. Cependant, certains l'ont traité comme un sujet narratif en racontant ce qu'ils font pour rester en bonne santé. Leur texte manquait d'objectivité.

Organisation

Les phrases lues étaient essentiellement des phrases simples avec beaucoup de répétitions. Peu d'étudiants ont pu employer une syntaxe riche et variée et produire des textes cohérents, souples et fluides. Certains étudiants ont quelques difficultés avec les subordonnées relatives.

Vocabulaire

Plus de la moitié des étudiants possèdent un vocabulaire élémentaire.

Les interférences du créole et de l'anglais sont multiples. On a lu: *je **trappai** sa main;* Tous les ***gramatins***; *Elle ne **conne** personne*; *Les **vides** de la maison; Les meubles était **couvert avec la poussière;*** Papa est allé **cote** la vielle dame; Maman m'a ***criyé pour dire***; **Après avoir gagné tous ces problem avec maman**; *je l'ai laissé **comme ça mem***; ***Elle n'a pas aucun l'argent pou achète quelquechose pour lui***; *La fumer de cigarettes **pollute** l'**environment.***

L'influence du langage SMS est marquante. On a relevé: *Je la **explik;** Je raconte tous ceux **ki** s'est passé; **mwa ossi**; **ankor; pozé** des questions**.***

Souvent, on a lu '***ça***', du registre familier, au lieu de '***cela***', qui appartient au registre soutenu.

Langue

Les lacunes en langue sont importantes. Il est significatif de noter que presque la moitié des étudiants n'ont eu aucune note pour la langue. Une grande insécurité linguistique a été ressentie à ce niveau.

Orthographe

Homonymes: De nombreux étudiants écrivent comme ils entendent sans faire attention à la catégorie grammaticale du mot, avec beaucoup de confusion au niveau des homonymes: *a/à, était/été, ais/é/er* et *ont/on, notre/nôtre*. On a lu: *le toit de la maison n'y **été** plus; comme nous étions tous **a** vélo***;*** *Une maison hant**ait***; On racont**é**; *dans **nôtre** direction ; Je lui donn**er** une robe et je lui donn**er** à manger.*

Il y avait/ tout le monde/ beaucoup de *:* Dans nombre de copies, '*il y avait*' et '*tout le monde*' ont été maladroitement écrits au pluriel et un bon nombre d'étudiants écrivent '*beaucoup des*' et non '*beaucoup de*'. On a aussi constaté que le verbe est souvent conjugué au singulier après '*beaucoup de*'.

Grammaire

Les Pronoms: On a observé que plusieurs étudiants ne maitrisent pas la pronominalisation des COD et des COI. Aussi, avons-nous relevé: "*Je **l'**avait dit; sa mère **l'**avait pas donné; **l'**a demandé; Je **lui** transportait; je **lui** aidait".*

L'ordre des pronoms est également problématique, avec des tournures maladroites comme "*j'ai lui donnée; J'ai l'emmenée chez moi*".

Verbe

L'infinitif: Les règles régissant l'infinitif posent problème. Beaucoup d'étudiants conjuguent souvent le verbe après une préposition ou un premier verbe. On a trouvé: *On peut facilement maigrir et se **musclé**; Les gens doit **interdit** les enfants; Pour **resté** en bonne santé; C'est de **resté** en bonne santé; Tout le monde veut **reste** en bonne santé; Je ne pouvais pas l'**oublié**.*

Terminaison: La terminaison des verbes pose un gros problème. On a relevé: *Je couru**t** chez moi et décrivi**t**; Je vi**t**; Je pensai**t**; Je regardai**t**; Je constat**a**; Je retir**a** Rs 25 de ma poche et l'approch**a**.*

L'Auxiliaire: On a remarqué que les verbes se conjuguant avec l'auxiliaire *être* ont été conjugué avec l'auxiliaire *avoir* par beaucoup d'étudiants. Quelques exemples: *ma mère **avait** parti la quitté; La dame avait l'air d'**être** très faim; Après **avoir** sortir; J'**ai** lui **est** demandé.*

Le Participe passé: La terminaison du participe passé des verbes du troisième groupe est souvent erronée. On a relevé plusieurs occurrences du participe passé du verbe '*mettre*' écrit avec un '*t*' au lieu de '*s*'.

L'accord du participe passé en général pose d'énormes problèmes aux étudiants. On a également constaté que des fois, le participe est maintenu à l'infinitif. Quelques exemples relevés: *La maison était bien **construit***; *J'ai découvert une boîte. Je l'ai **ouvert**; La maison est **casser** et aussi les vitres **est** aussi **casser***; *Cette maison est **surveiller***; ***Arriver** en lieu sûr, nous nous sommes **fait** la promesse*; *contente de m'avoir **parler.***

Les participes passés ayant une valeur d'adjectif dans la phrase ne sont pas accordés, par exemple : *La maison **hanté**; Une vieille dame **allongé***.

COMPUTER STUDIES/LITERACY

General Comments

Students performed quite well in the assessment with more than 50% scoring above 40 marks in Computer Studies/Literacy. **Figure 4** gives a bar chart showing the distribution of students across the different mark bands.

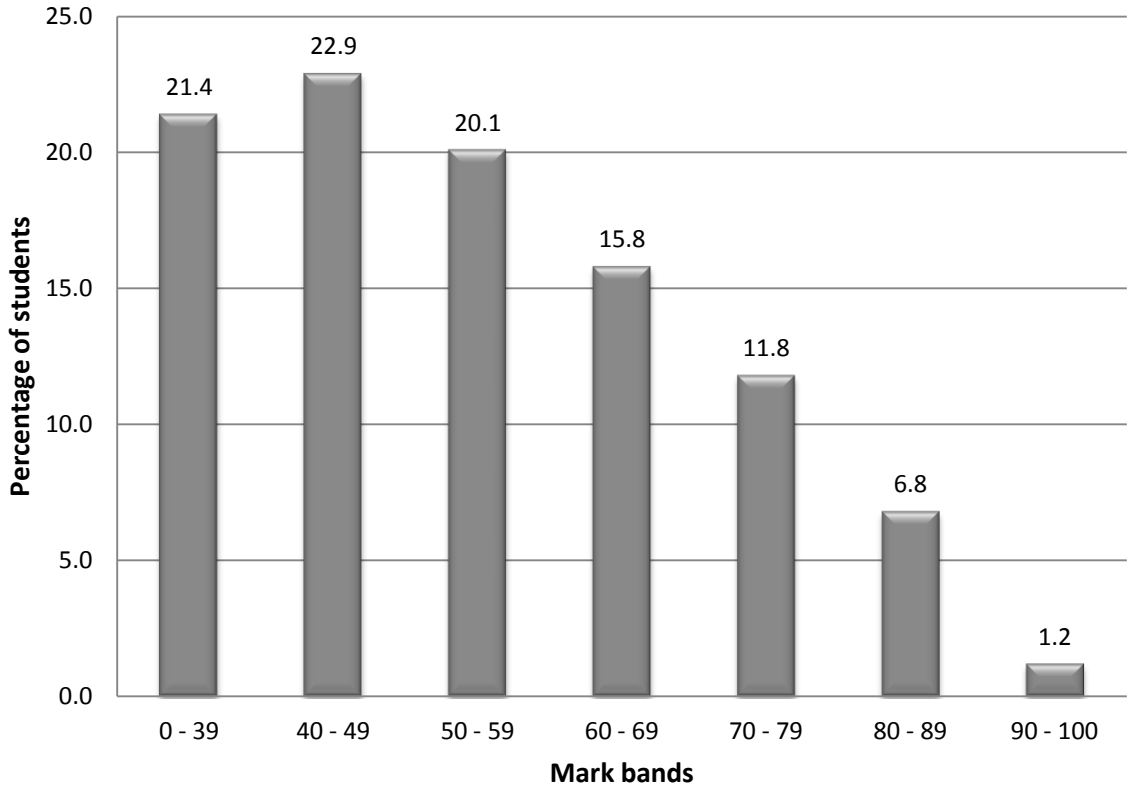

Figure 4: Students' performance in Computer Studies/Literacy

Paper Description

The question paper contains two sections: Section A and Section B

Section A consists of 8 questions and carries a total of 55 marks. Students are required to answer all the questions.

In this section, a variety of questions was set such as Multiple Choice Questions, Selection, Matching, Fill-in-blanks, True or False questions, Structured and open-ended questions. The different types of questions catered for all the ability groups.

Section B consists of **four** options and carries a total of 45 marks. In each option, there are 2 questions that carry a total of 15 marks each.

- **Option 1**: Microsoft Word (15 marks)
- **Option 2**: Spreadsheet (15 marks)
- **Option 3**: Database (15 marks)
- **Option 4**: System Flowchart (15 marks)

Students are required to answer all questions from any **three** options. The section tested the students' familiarity in implementing the application packages namely Microsoft Word, Spreadsheet, Database and System Flowchart.

Comments on specific questions

Section A

In general, students scored good marks in Section A, except in Q7 & Q8 where students scored slightly below the average mark as they had to write open-ended answers for these two questions. In Q2 & Q4, most of the students scored high marks.

Section B

Option 1: Word Processing

Question 1 (i): Multiple Choice Questions (5 MCQs)

Most of the students who scored at least 40 marks on the question paper answered most of the multiple choice questions correctly. In part (c), however, it was noted that students had difficulties in the formatting of paragraphs related to the given text in the question and in distinguishing the terms: *justify, left aligned, centered* and *right aligned*.

Question 1 (ii)

This question required students to state the most appropriate Word features or Commands corresponding to the given statements. Students answered this question poorly and most of them scored very low marks.

Students are apparently not familiar with the Word features or Commands and it seems that they are unable to associate the required terms with the given statements. Although in practice they may have encountered these features, they did not seem familiar with the technical terms.

Question 2

In this question, a word-processed letter was provided and questions were set on the given text.

Students in general did not fare well in this question. This reinforces the impression that students are not sufficiently familiar with Word features and the technical terms associated with them.

Option 2: Spreadsheet

Question 1: Multiple Choice Questions (8 MCQs)

In general, most of the students across all ability groups scored above average marks in this question. Most of the students who scored above 60 marks obtained full or almost full marks.

Question 2

A spreadsheet of a Bookshop Sales was given and questions were set on the given spreadsheet. It was observed that students did not score highly in this question.

The difficulties encountered by the students can be attributed to a misunderstanding of the question itself or to wrong interpretations.

Option 3: Databases

Question 1

Part of a database to keep information about properties for rent in various regions of the country was given. Questions were set on the given database. Students were required to write their answers in the spaces provided.

Even students who scored above 40 in the question paper could not get the average mark.

Students may have had difficulties in understanding the question or in interpreting the database. It was found that many of the students who scored low or zero mark in Section B had opted for option 3.

Question 2

A record format of a company keeping details of all its employees was given. Questions were set on the given record format. Students had to write their answers in the given spaces.

About a quarter of the students did not attempt this question and less than half of the students obtained the average mark.

Students did not have a good understanding of the concept of databases or the question itself.

Option 4: Program Flowchart

Question 1

Open-ended questions and a diagram of a flowchart were given. In general, performance on the question remained fair.

Question 2 (a)

Students were required to give the corresponding outputs from the given program flowchart.

Question 2(b)

Students were required to draw a partial program flowchart in the given space.

In both parts of Q2, the large majority of students scored below the average mark.

In general, students did not attempt this question as they had the choice to answer 3 options out of 4. This question which requires higher order thinking skills was attempted only by those students who scored above 60 marks.

Conclusion

To conclude, it can be said that students perform better in questions which do not require much writing (MCQs, True/False Question, Fill-in-blank, Matching questions) but they have difficulties in answering questions requiring higher order thinking skills and application. Writing out their answers in English was found to be very difficult.

BIOLOGY

General Comments

Performance in the 2012 assessment session was satisfactory with 68% of the cohort getting at least 40% of the marks. The mean mark scored in the whole paper was 25.8 out of 50, implying that an effort is warranted to improve the quality of the passes achieved.

Questions requiring a one word answer or a short answer were less problematic than those where students had to produce longer answers. It is noted with concern that in certain cases students provided no answer to open ended questions or to questions requiring them to produce a longer answer.

Figure 5 is a bar chart showing the distribution of marks within different mark bands.

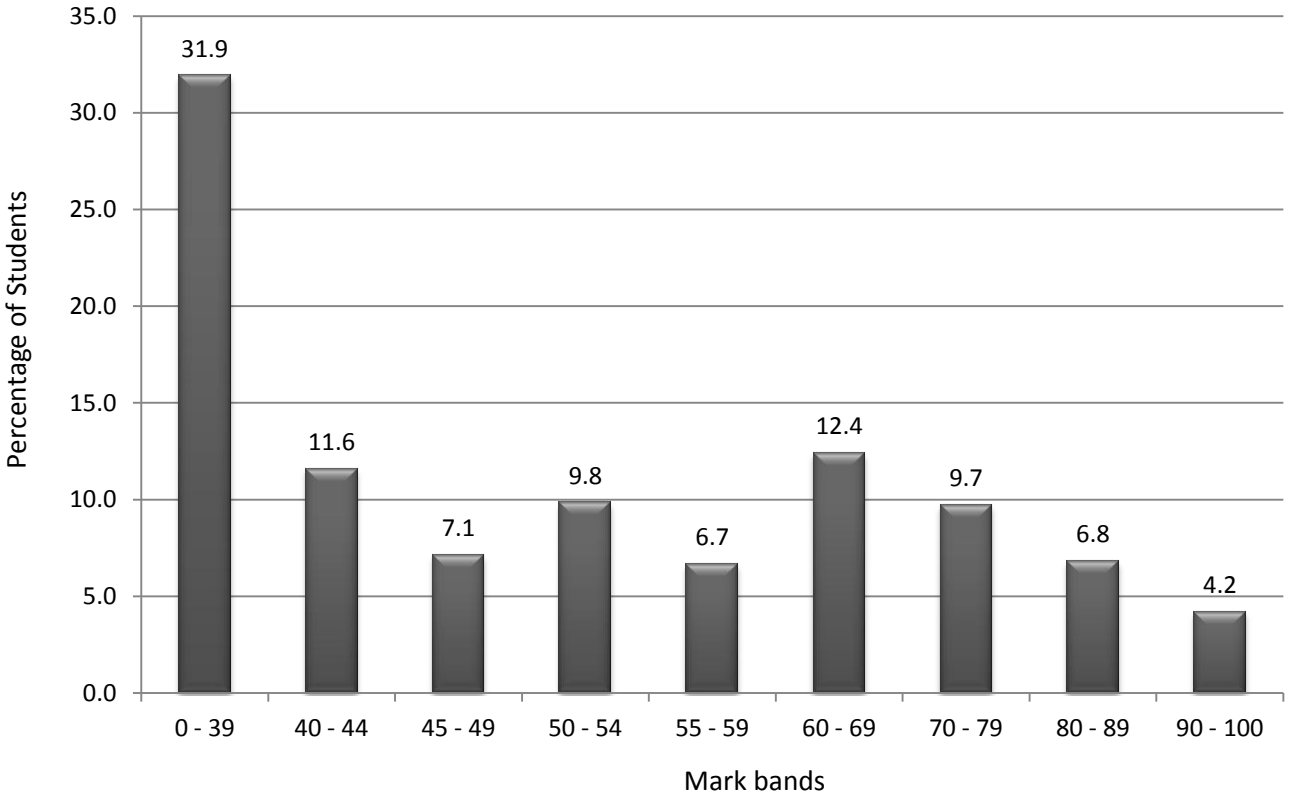

Figure 5: Percentage of students scoring different mark bands

Figure 5 indicates that the majority of students scored between 0-39 marks.

Specific Comments

Question 1

Question 1 comprised 5 multiple choice items on different topics.

Most students had no difficulty getting the correct answer for items (b) and (e).

Item (a) '*What is the name given to a group of similar cells working together to perform the same function?*'

This item proved to be the most challenging in this question with more than one third of the cohort getting the answer wrong.

Students also had some difficulty with items (c) and (d).

Item (c) '*Which one of the following substances is mainly excreted by the kidneys in a healthy person?*'

Students might have overlooked the word kidney, resulting in a relatively large number giving option A - Carbon dioxide instead of option B - Urea.

Item (d) '*Which one of the following types of organisms obtains its nutrients by breaking down dead and decaying plants and animals?*'

Some students were unfamiliar with the role of decomposers in the ecosystem.

Question 2

Question 2 comprised 4 items, testing knowledge of the function of the components of blood. The items in this question required students to produce some more elaborate answers which often proved to be challenging. This question, though a direct recall of knowledge, was not within the reach of many students.

Students were familiar with the function of red blood cells mainly. Relatively detailed answers such as *'Red blood cells contain haemoglobin which combines with oxygen to form oxyhaemoglobin to transport oxygen to all parts of the body'* were obtained in some scripts. Simpler answers such as *'It carries oxygen all around the body'* were also accepted.

More than half of the cohort could not score any mark on item (b), which was on the function of white blood cells. Answers such as '*It protects the body against diseases'* was fairly common and were given full credit. Answers such as '*It engulfs the bacteria'* or '*It produces antibodies'* were also considered acceptable. More detailed answers such as '*White blood cells protect the body against diseases by engulfing and digesting bacteria and by producing antibodies'* were the hallmark of the best scripts.

Items (c) and (d) were much more challenging for the students. A significant number did not give any answer to these parts of the questions. The word 'clotting' was often wrongly written and answers such as *'*blood clothing'* were found in scripts. Reference to the function of *'blood clotting'* for item (c) was accepted. For blood plasma students had to refer to the way blood plasma helps in the transport of or carrying of nutrients, minerals etc. around the body. Answers such as '*blood plasma contains plasma nutrients, minerals and also acts as a medium to transport them to different parts of the body'* demonstrated a full understanding of the topic.

Question 3

The mean mark for this question was 4.8 indicating that students had some difficulty with this topic and/or the types of items set.

Item (a) *Define transpiration in plants.*

Many students were able to give a correct definition of transpiration in plants. Answers such as '*transpiration is the loss of water in the form of water vapour through the stomata of the leaves to the atmosphere'* were given full credit. Some answers lacked precision and were credited with half the mark only. For instance, '*it is the loss of water'* was not given full credit.

Some students did not refer to transpiration in plants but referred to the process of sweating in humans. For example, answers like '*transpiration is when we do exercise or when it is hot we get transpiration'* were seen. This suggests that there is some confusion in the understanding of these biological terms.

Item (b) consisted of a table in which students were expected to indicate whether the rate of transpiration will increase or decrease under certain environmental conditions. About half of the number of students indicated the effect correctly. Students were mainly confused about the effect of *decrease in air movement*.

Item (c) was based on the picture of a *Chlamydomonas.* Based on its features, students had to deduce that it was a plant cell. It was encouraging to find that a fair number of students were able to give the features which classify the *Chlamydomonas* as a plant cell. However, they had more difficulty in finding the process by which the *Chlamydomonas* manufactures glucose. A number of students gave the wrong answer *respiration* or *starch grain.*

Question 4

This question was on diseases. Students fared quite well and were able to answer most of the questions though some of the open ended answers often lacked precision.

Item (a) *Why did the other students also catch this disease?*

Students were able to refer to the communicable nature of the disease. Some only described how the disease is spread without mentioning that it is a communicable or a contagious disease which resulted in a partial loss of marks. An example of a correct answer was '*Because influenza is a contagious disease it is passed on from one person to another by physical contact.'*

Item (b) *More and more people now suffer from cardiovascular diseases in Mauritius. Give one reason why.*

Most students were familiar with this topic and this item did not pose much difficulty. Correct answers ranged from *overconsumption of fast food* to *smoking cigarettes.*

Item (c) (i) was successfully done by most students who were able to give the correct answer - HIV/AIDS.

Item (c) (ii) was also relatively well tackled by students. One common way to avoid infection by the disease that was given was *'use of condoms during sexual intercourse'.* Other correct answers given included '*avoid sharing unsterilized needles, tattoos etc.,' 'avoid having sexual intercourse with many partners'* and *'adopt safe practices'.* However, when giving answers such as *'adopt safe practices'* students are expected to give more precision in relation to the context of the question.

Question 5

This question was on the topic 'Ecosystem and Biodiversity'. It was noticeable that a number of students had difficulty with this topic.

Item (a) *Name a terrestrial ecosystem.*

A significant number of students were not able to name a terrestrial ecosystem. Some of them gave more than one example and part of the answer was wrong. Students are advised to be accurate in the way they answer questions. Little credit can be given to answers which are vague.

Item (b) *Why is it important to maintain a balanced ecosystem?*

Only a small number of students were able to score full marks in this item. Examples of correct answers given are: *'it is important to maintain a balanced ecosystem so that the lives of organisms are undisturbed. There should be enough food and habitat for all animals and plants so that some species do not become in danger of extinction.'* or *'A balanced ecosystem ensures that all the organisms are in equilibrium, that is, there is enough food and shelter for everyone. Extinction of species is then avoided.'* Answers such as '*to get good environment'*, '*to preserve life'* or *'without a balanced ecosystem, the aquatic life would not be the same'* lacked the required precision to be given credit.

Item (c)(i): Most students were able to identify a carnivore and a producer from the food web but more had difficulty in giving the name of a herbivore from the food web.

Item (c)(ii): A fair number of students were able to give a correct food chain from the food web. It was noted that some students draw reverse arrows in the food chain. Some others did not start with a producer. These are basic elements in a food chain that students must know and more importantly they must know why the arrow points from producer to consumer and so on and the reason why a food chain must start with a producer.

Question 6

This question dealt with the topic 'Breathing and Respiration'.

Item (a) was a fill-in-the-blank task. A short paragraph describing the passage of air from the nostrils to the lungs was given. The word that was most easily found by the students is '*nasal cavities'* or *'nostrils'* while the one which proved to be most difficult was *'pharynx'.*

Item (b)(i): Most students were able to give the names of the two persons who were most likely to have smoked tobacco before 9 am.

Item (b)(ii): Many students were able to suggest a way in which carbon monoxide could be found in Kevin's blood before he came to work. Examples of correct answers were: *'When he was travelling on the road, there is much pollution caused by vehicles. He might have inhaled carbon monoxide then.'* or *'When his friends were taking cigarettes he might have been near them causing him to inhale the toxic smoke.'* This is encouraging as it shows that students were able to apply their knowledge to the particular context given in the question.

Item (b)(iii): Less than one third of the cohort was able to suggest why smokers are out of breath sooner than non-smokers when exercising. Students were expected to explain the association between inhaling carbon monoxide and red blood cells. Examples of correct answers obtained are: *'When carbon monoxide combines with haemoglobin in red blood cells, carboxyhaemoglobin* (though the word is not required) *is formed and haemoglobin cannot perform its function of oxygen carrier. As the smoker lacks oxygen, he is soon out of breath.* Another example of a correct answer is 'O*xygen is needed to produce energy by aerobic respiration. When the red blood cells take up carbon monoxide, oxygen is not transported to the different body parts. With the absence of oxygen, anaerobic respiration occurs which produce only a small amount of energy and lactic acid. Smokers are out of breath as there is less energy available and lactic acid in the muscles cause fatigue.'*

Question 7

This question was based on the topic 'Reproduction'. It proved to be a challenging question for the students, which suggests either that the topic was not well understood by many or that students had some difficulty in applying their knowledge to the question's context.

In Item (a) students were required to label parts of the female reproductive system. Some students had difficulty distinguishing between the terms *ovary* and *ovum* and others wrongly labelled *cervix* for *vagina*.

Item (b) *Explain what happens during fertilization and briefly describe the process leading to the formation of a foetus.*

Very few students were able to score full marks in this question. Some described the whole process from the release of the egg during the menstrual cycle to the formation of the foetus. It is important that students remain concise in their answer. However, other students did not give enough detail on the process and thus were given only partial marks.

Item (c): Students were required to give the correct order of events occurring during the menstrual cycle. About one third of the cohort of students was able to give the correct order. It is important for them to know that in such types of questions, if one order is wrongly given, this will often lead to the other events being wrongly ordered and will result in the loss of the marks.

Conclusion

It is noted with satisfaction that the performance in the Biology Paper was better in 2012 than in 2011. However, there is still much room for improvement in the way students respond to the questions. They must be encouraged to explain their reasoning, especially when it requires longer pieces of writing, interpret a given situation, answer in a concise manner, label and draw diagrams and read and draw simple tables and graphs. These skills are not only essential for students to continue learning and understanding Science but are also transferrable skills which apply to other subject areas.

CHEMISTRY

General Comments

Half of the number of students scored at least 40% of the marks. The mean mark of 21 out of 50 shows that much effort is needed to improve the quality of the performance in the paper. While some students have been able to work their way fairly well through the paper, others faced difficulty with questions which test the basics of chemistry. For instance, some students did not know the meaning of an atom or of an air pollutant. Students also had difficulty in writing chemical equations or in answering open ended questions.

Figure 6 is a bar chart showing the distribution of marks among the students who sat for the chemistry paper. It shows that 50% of students scored between 0-39 marks.

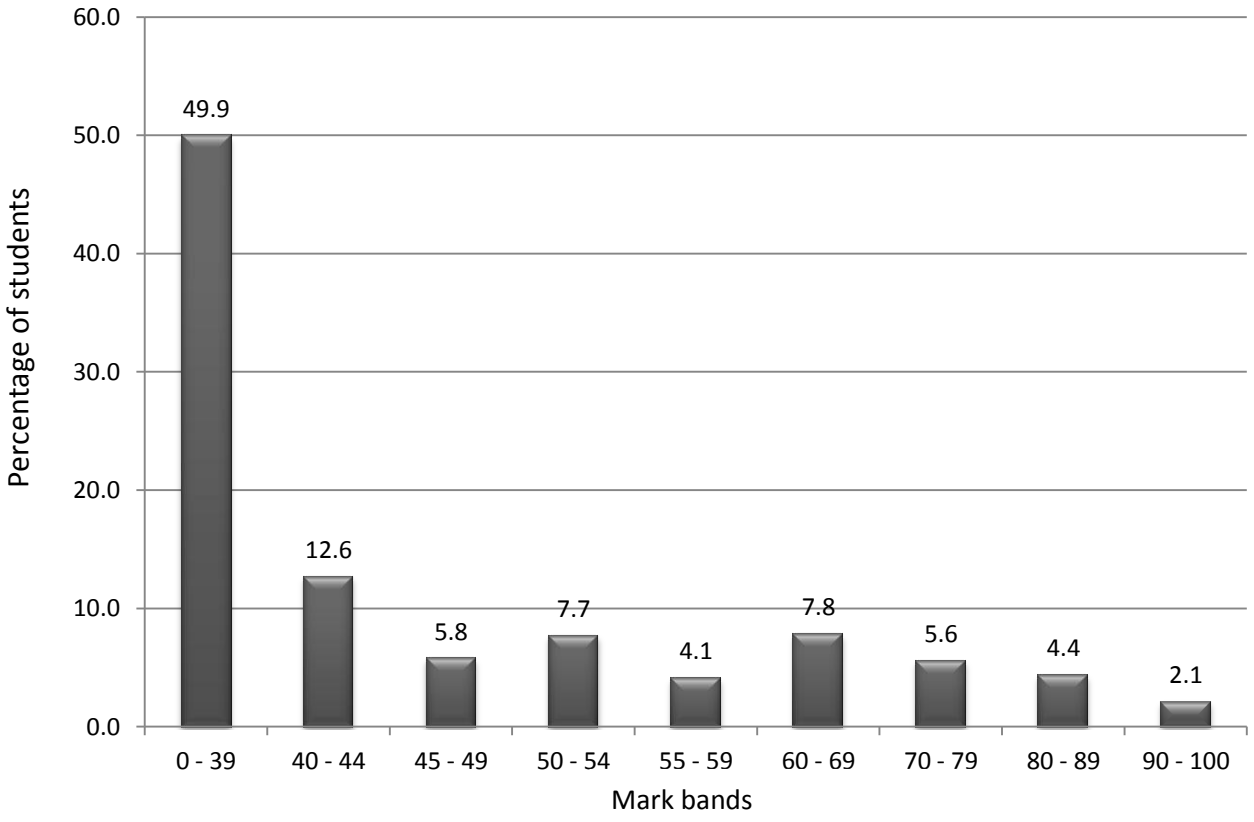

Figure 6: Distribution of marks in the Chemistry Paper

Specific Comments

Question 1

Question 1 comprised 5 multiple choice items on different topics. Students did not encounter much difficulty with items (b) and (e). For the other items, at least 1 out of 2 students was not able to answer correctly.

Item (a) *Which element reacts with dilute hydrochloric acid to form a colourless gas?*

This item was found to be challenging for students with many opting for the wrong options A and C. Students did not pay enough attention to the reactivity of the different elements given and might have focused on the '*colourless gas'* only.

Item (c) *What is the total number of atoms in one molecule of* $Ca(HCO_3)_2$*?*

This proved to be the most difficult item in this question with almost half the students opting for the wrong option A and a high number choosing option B. This suggests that students have not grasped the writing of *symbols* and *chemical formulae* and the meaning of terms like *atom* and *molecule*. This is also demonstrated in the high number of wrong answers in item (d) where again knowledge of atom was important.

These basic concepts in Chemistry need to be reinforced at classroom level.

Question 2

Question 2 was a fill-in-the-blanks question and many candidates fared relatively well.

The first item was within the reach of most students and the answers *oxygen* and *carbon dioxide* were easily found.

In Item (b) students had to find the gas which constitutes about 79% of dry air. This is a direct recall question and refers to a basic scientific fact. However, more than one third of the students were unable to find the correct answer.

A fair number of students were able to find the elements found in $FeCl_2$ and $FeCl_3$. However, many students wrote *Chloride* instead of *Chlorine.* Since these two words are quite similar, it is important to ensure that students get the correct meaning of these words so that there is no confusion between the two terms.

Question 3

This question tested some practical knowledge as well as the writing of chemical equations. Less than 1% of the cohort of students was able to score full marks in this question while the majority scored between 0-2 marks.

In Item (a)(i) students were required to complete and label a diagram to show what they would observe when excess zinc carbonate is added to sulfuric acid. Very few candidates were able to attempt this item correctly. Some did not attempt the question at all and others only provided a drawing which in most cases was wrong and others still only labelled the diagram on the arrows without any drawing.

This item demonstrates the importance of carrying out practical work wherever possible even if it is only in the form of demonstration. Doing practical activities reinforces learning and helps students to visualise the experiments made when they are being assessed.

Students also need to read the question very carefully. They were required to complete only part II of the diagram. However, many drew and labelled part III of the diagram as well.

Item (a) (ii) *Which observation in Diagram(III) would show that all the acid has reacted?*

Only a small number of students were able to answer this item correctly. It is likely that these students have had an exposure to this practical experiment.

Item (b) (i) A large number of students were able to give the correct answer with both *zinc sulfate* and *zinc sulfite* being accepted as correct answers.

Item (b) (i) (ii) Students were expected to write the word equation and to balance the chemical equation for the reaction. If a few of them were able to write the equation in words, much fewer were able to either write or balance the chemical equation. This shows that students have difficulty in writing the chemical formulae of compounds and consequently are also not able to write and balance chemical equations. It is important that students learn about the writing of formulae since this is a basic concept in Chemistry and is used in everyday life (for example, in foodstuff).

Question 4

This question tested the students' knowledge of the different types of reactions taking place in the atmosphere. In general, students did not have major difficulties in identifying the type of change happening in the given process and in giving the substance being removed from the air during the process.

The first change, that is the process of *condensation*, proved to be the most challenging to the students where many gave *chemical* instead of *physical.* This concept can be reinforced by demonstrating the cycle of change that happens in the processes of evaporation and condensation of water.

Question 5

This question was on the characteristics and uses of different chemical substances that are commonly used. Item (ii) was relatively well tackled by the students. The other items were found to be more challenging.

Students encountered some difficulty in identifying *calcium sulfate* as the insoluble salt and *copper* as the metal which will not react with dilute acids. It was, however, relatively easy to identify copper as the metal since most of the other options were salts except for calcium. A knowledge of the reactivity series would have also helped students in this question.

Item (iii) was the least well done in this question. Students found it difficult to name *copper (II) sulfate* as the coloured salt.

Many students gave *copper* as answer for a compound which will react with nitric acid to form copper (II) nitrate. The knowledge of the reactivity series as well as the uses made of copper might have helped students in avoiding this mistake.

Question 6

Question 6 also dealt with the practical aspects of Chemistry and with the topic on pollution.

Item (a) (i): As was noticed generally, when students have to answer open ended questions, they have difficulty in writing simple and correct English. Students were expected to talk about the reversibility of reactions. Many students gave answers which were not related at all to this concept. For instance, answers such as **Because no heat and light are involved* or **Because atmospheric temperature is high and melting occurs* or **Because melting is caused by heat and not by chemicals* all show that the concept was not properly grasped by students.

Item (a) (ii): More students were able to write what they would observe *when magnesium burns in air* than those who could attempt the first part of the question. Most of the correct answers were *magnesium burns with a white or a dazzling flame.* Some students gave the product of the reaction, that is, *it becomes a solid powder,* which was also credited.

Item (b): If a few students were able to find the correct answer for Gas G and Solid O, significantly fewer were able to identify *Sulfuric acid* as the chemical substance in solution C. Wrong answers included *Sulfur hydroxide, Hydrochloric acid* or else no answer was given. It was clear that the experiment was with sulfur and therefore students could be expected to deduce that the chemical in solution C must contain sulfur.

Item (c) *What is an air pollutant?*

About one third of the cohort was able to define what an air pollutant is. However, many gave answers such as **An air pollutant is something which pollutes the air* which in fact does not explain anything. Some students explained the effects of an air pollutant instead of saying what an air pollutant is. It is expected that students say that the air pollutant contains harmful or toxic substances that will harm the environment, animals and plants. Stating that the air pollutant is *harmful* or *will affect the environment* or *will pollute the environment are* not enough.

Item (d): It was easier for students to find a harmful effect of Gas G than to find its source. Often the effect given was only a general effect of an air pollutant as in many cases students were not able to give the source of the name of Gas G. *Exhaust fumes from vehicles, combustion of fossil fuel* or *from exhaust fumes from factories* were all considered correct sources of Gas G.

Question 7

This question was based on the preparation of a soluble salt.

Item (a), though a direct question, was found difficult by a fair number of students. They were expected to know that litmus paper is red in an acidic medium and blue in an alkaline medium.

Few students were able to give the correct name of the type of chemical reaction shown, that is a neutralization reaction. The presence of an acid and an alkali was expected to trigger the answer but in many cases students were not able to make the link. Some students gave the word equation for the reaction or left the question unanswered.

Only half the students who were able to give the name of the soluble salt formed were able to give the chemical formula as well. As has already been highlighted, writing chemical formula is problematic to students.

Item (d), where students had to order the metals given according to their reactivity was fairly well tackled by many students.

Question 8

Question 8 was on the distillation process to obtain pure water from sea water.

Item (a) *Briefly describe what happens during the distillation process.*

Students were able to give partially correct answers in many cases though a few were able to describe the process as expected. Most students who scored marks in this item were able to say that seawater has to be boiled and that the vapour will pass through the side arm to the condenser where it will condense into droplets which will collect in the flask.

Item (b): A fair number of students were able to name another mixture that can be separated by distillation. This suggests that students understood the way a distillator works and the characteristics of substances that can be separated using this method.

Item (c): It was easier for students to find the answer for the method to separate iron nails and pieces of copper more easily than they did for the method to separate mixtures of sodium chloride and ammonium chloride. They were expected to have a knowledge of the properties of these substances to be able to suggest a separation method.

Conclusion

It is important that emphasis be laid on the acquisition of basic knowledge of Chemistry to ensure that students can continue to study this subject or to understand the Chemistry they encounter in everyday life. It was noted throughout the question paper, wherever an item was seen as a challenge or required more thinking and application, many students left the question unanswered. This suggests that they do not have sufficient knowledge of the concept or topic or lack confidence to try to provide a reasoned answer. It must be ensured that students are able to express their answers in clear English, that they can interpret a given situation, answer in a concise manner, label and draw diagrams and read and draw simple tables and graphs. These skills are important for students to continue learning Science and are also transferrable skills related to other subjects.

PHYSICS

General Comments

Students in general found the Physics Examination Paper 2012 quite challenging. The mean mark for the Physics paper was 20.5 out of 50. Less than half of the students were able to achieve at least 40 % of the marks. The bar chart in **Figure 7** provides a summary of the overall performance of students with regards to the percentage number of marks which they attained. It shows that the large majority of students scored between 0 and 39 % of the marks.

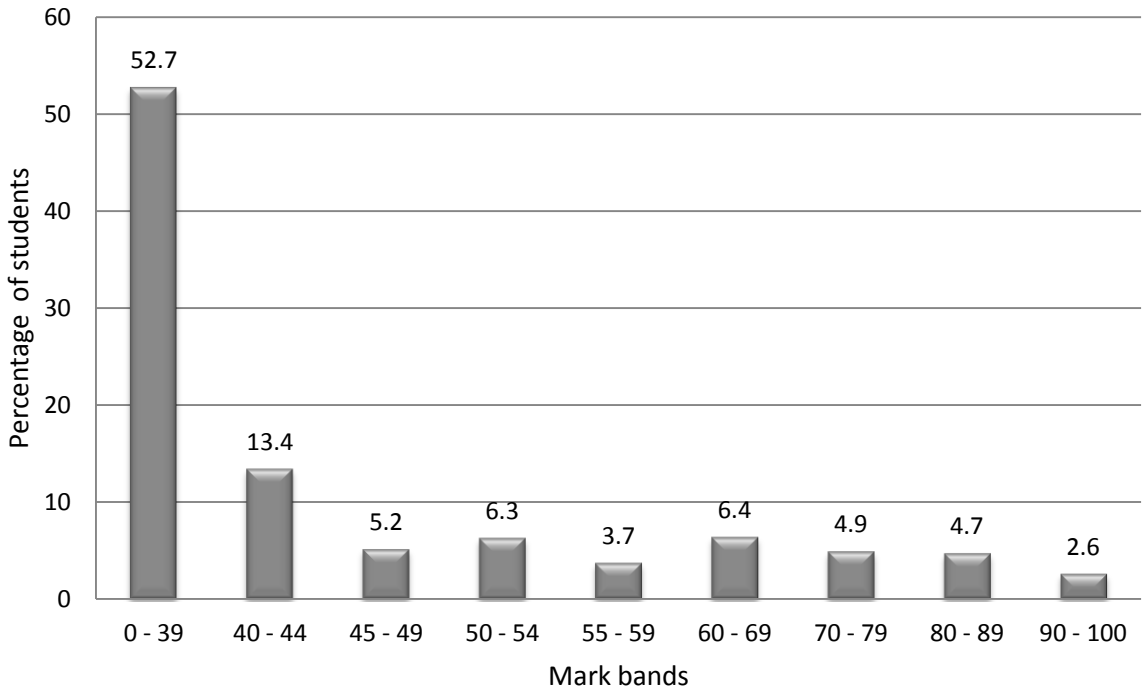

Figure 7: Students' Performance in Physics

Overall, students found **Questions 2** and **5(a)** relatively easy. **Question 8** was the most difficult.

A considerable number of students at this level find it difficult to answer in writing. This was apparent in open-ended questions which required students to explain their reasoning or to express their ideas. For students who struggle to express their thoughts in clear English, it might

be helpful to instruct them to write short, simple and logical sentences instead of writing a single, long and complex sentence which is likely to create more difficulty.

Students struggle with questions requiring them to provide definitions suggesting that those are learnt by heart without understanding. They also encounter much difficulty when they have to solve a problem in a given context or in an unfamiliar situation as noted in **Questions 4**, **6** and **7**.

Specific Comments

Question 1

Question 1 comprised 5 multiple choice items, one on each of the 5 topics that make up the Physics syllabus. The majority of students scored 2 out of 5 marks on the question. Very few were able to score full marks. An interesting point to be noted here is that for each item, the success rate was rarely above 50% with the exception of **Qu. 1(b)** where 58.4 % of students gave the correct answer.

(a) This part of the question was relatively straightforward and students tackled it fairly well. It tested students' knowledge of which physical quantities are classified as vectors. A high proportion of students chose either options **A** (length) or **D** (speed) which suggests that many students either do not understand what vectors are or they cannot differentiate between which physical quantities have a direction and which do not.

(b) This was the most well-attempted item. It required students to recall the definition of 'current'. Option **C** (Volt) was a strong distractor. This indicates that there is a possible misunderstanding on the part of some students with respect to the ways in which 'volt', 'current' and 'charges' are related.

(c) Students attempted this item quite successfully. It required them to recall the formula to calculate 'Power'. Distractors **A** (Force X Distance), **B** (Force/Distance) and **C** (Work done X time) attracted an almost equal number of students, suggesting that, for an important number of learners, the notion of how 'work done', 'force', 'distance' and 'power' are related to one another is vague.

(d) This was the least well-answered item in **Question 1**. It tested whether students recalled and understood the laws of reflection. Option **B** (55^0), chosen by a high proportion of students, indicates that many recollected that the angle of incidence is equal to the angle of reflection. A large number of students, however, overlooked the fact that the angle given in the figure was not the angle of incidence.

(e) Students fared better in this part of the question than in **part (d)**. Option **C** (200 m) was a powerful distractor. A significant number of students also chose options **A** (120 m) and **D** (240 m) which shows that the concepts of distance and displacement need to be further reinforced during classroom instruction so the difference between the two is perceptible.

Question 2

Question 2 was the most successfully tackled question of the paper with a great number of students being able to score full marks. It was a matching type question which tested students' basic knowledge of the instruments used to measure the four basic physical quantities and the SI unit in which they are measured. Although a context was provided, this did not seem to pose any major difficulty to students since the responses were already provided.

Question 3

(a) **Qu. 3(a)** required students to recall and state the law of conservation of energy. Students did not fare well on this item. Some students recalled the law only in part and were able to score partial marks. Many were not able to express the law meaningfully in words.

It was clear that some students mistook the law of conservation of energy for other concepts related to the topic such as 'energy saving' and 'work done'. Many wrong responses thus referred to those. Some incorrect answers included the following:

'Energy is the capacity to do work'.
'Energy can be created or destroyed'.
'Energy is defined as work done'.

'Law of conservation of energy means the use of alternative energy and energy saving'.

'The law is always changing'.

'We have to use renewable sources of energy'.

'Energy has to be recycled to protect the environment'.

(b) This question assessed students' knowledge of the energy conversion that takes place in a given context. In general, students did not do well in this question.

A source of difficulty might have been that the processes or contexts given were not commonly found in textbooks. The wording in English was a challenge to a few students who could not decide which form of energy was being converted to which other form as they were not able to make sense of the words given (e.g. car brakes, hydro-electric or dam).

The best done items in this question were **Qu. 3(b)(i)** and **Qu. 3(b)(iii)** which required students to indicate the energy conversion that takes place in a fan and a dry cell respectively. The items which students found the hardest were **Qu. 3(b)(ii)** and **Qu. 3(b)(v)** which required them to state the main energy conversion that takes place in car brakes and in the process of producing electricity from the water stored in dams. **Qu. 3(b)(iv)** dealt with the process of photosynthesis.

(b)(i) Some common wrong responses recorded in **Qu. 3(b)(i)** included the following:

Electrical energy, sound energy, wind energy **or** *heat energy*

(b)(ii) Common mistakes noted in **Qu. 3(b)(ii)** were:

Mechanical energy, kinetic energy, movement energy, chemical energy, potential energy, frictional energy **or** *electrical energy*

(b)(iii) In this part question, the following wrong answers were noted:

Potential energy, kinetic energy, electrical energy **or** *light energy*

(b)(iv) As far as **Qu. 3(b)(iv)** is concerned, the common wrong answers observed included:

Solar energy, kinetic energy, potential energy, heat energy **or** *natural energy*

(b)(v) Wrong answers recorded in the case of **Qu. 3(b)(v)** were:

Wave energy, kinetic energy, chemical energy, solar energy, movement energy, heat energy **or** *electrical energy*

It is also worth noting that some of the students faced difficulties in distinguishing between 'forms' of energy and 'sources' of energy.

Question 4

Students did not do well on this question in general. A considerable number of them did not attempt parts **(a)**, **(b)** and **(d)(ii)**. Those who did attempt these items struggled with parts **(b)** and **(d)(ii)** in particular.

Very few students were able to give the two reasons to explain why the light was unable to reach the screen in the second experiment in **part (c)**. Some could find at least one valid explanation – either that light travels in a straight line or that light cannot pass through opaque objects – but, often, they simply re-stated the information that was already provided in the stem namely that the light could not reach the screen because *Card B was displaced to the left*.

With regard to **part (d)(i)** of the question, the majority of the students could not decide whether the phenomenon that was being referred to was a 'reflection' or a 'refraction'. Misspelling of the word 'refraction' was common. A good number of students did not have any inkling about which phenomenon was being described and gave answers such as:

resistance, beam light, force, west, parallax error, reflected ray **or** *displacement*

As far as **part (d)(ii)** of the question is concerned, very few students were able to draw the ray of light correctly. Some, however, showed the two required lines with the ray of light bending away from the normal when in the air but overlooked the fact that the direction of the ray of light had to be drawn from the ring to the eye and not the contrary.

Question 5

(a) Almost all the students were able to identify the most appropriate container to measure 18 cm^3 of water.

(b) Students were less successful in attempting this part of the question because they had difficulty in expressing their reasoning in writing. A few examples of inadequate responses are as follows:

> because in the measurement there are more units
> as it can be measured in millilitre also
> because it has more arrow than the other
> measurements is clear and we won't do any mistake

Question 6

This was a quite straightforward question which required students to apply their understanding of what gravitational potential energy is in a particular context. They were expected to calculate the potential energy possessed by a firefighter found at 20 m above ground level given that his/her weight was 850 N.
An important number of students were able to score at least one mark for recalling the formula to calculate gravitational potential energy. Only a few, however, were able to score full marks in the question. The two most common errors observed were:

1. mistaking the weight of the firefighter for its mass when applying the formula $E_p = mgh$; and
2. failing to recognise that the firefighter was 20 m (13 m + 7 m) above the ground.

Question 7

(a) A great number of students had difficulty to identify the different symbols given. Those were the *'bulb'*, the *'resistor'* and the *'cell'*. Students offered a wide range of incorrect responses such as:

In **part (a)(i):** *combined, close switch* or *opened circuit*

In **part (a)(ii):** *resistance, switch, cell, battery, connector, closed circuit* or *fuse*

In **part (a)(iii):** *parallel, switch, open/close circuit, wires* or *battery*

(b) **Part (b)** was more challenging as it required students to apply their knowledge and understanding of electric circuits to a given situation.

(b)(i) The majority of students could not identify which type of circuit were **Circuits A** and **B**. Common wrong answers were:

simple & connected circuits, serial & parallel circuits (for which sometimes marks were awarded), *open & closed circuits* ***or*** *horizontally* and *vertically connected circuits*

(b)(ii) This part question typically tested students' ability to think more deeply about how a broken wire would affect a 'series circuit' and a 'parallel circuit'. Performance in this part was generally disappointing. Quite a few students did not attempt **part (b)(ii)1**. Many more did not attempt **part (b)(ii)2**. It appears that students tend to refrain from responding to questions that require them to think critically. Their inability to communicate their ideas effectively was once more evident here.

(b)(iii) For this part question **part (b)(iii)**, a considerable number of students either used an incorrect formula or chose not to attempt this part of the question. A significant number of students were able to calculate the total resistance of the circuit but omitted the unit of resistance and, thus, were not given full credit.

Question 8

(a) This part question tested students' ability to interpret a speed-time graph. Few students could state that the speed of the car at time t = 0 s was 12 m/s. The most common wrong answer was 0 m/s.

(b) **Part (b)** of the question required students to define uniform speed. Students did not perform satisfactorily in this part question. Very few students were able to give a correct definition of uniform speed. Apart from the fact that some students could not recall the definition with accuracy, their responses also revealed a number of misconceptions regarding what a horizontal straight line on a speed-time graph indicates. Some of the wrong answers noted were:

The car is moving
The car is moving at equal speed and equal time interval
The car stays at the same speed for some time
Speed does not change
The car moves with the same speed each time that the car accelerates
The car moves with regular speed
It doesn't have any speed

(c) Only a small number of students were able to score full marks in **part (c)** where they were asked to calculate the acceleration of the car. Some, however, scored at least one mark for writing the correct formula. The major difficulty which students encountered here was to read the initial and final speeds from the graph. The concept of 'gradient of a line' was correctly applied to the part question by some of the insightful candidates.

(d) A slightly greater number of students were able to score full marks in **part (d)**. Some students displayed creativity while attempting this question. If some had recourse to lengthy mathematical calculations, others shaded that part of the graph indicating the additional distance travelled by the bus and, rightly reasoned that if they calculated the area of the shaded region, they would obtain the required distance.