MAURITIUS EXAMINATIONS SYNDICATE

## NCE 2023

GRADE 9

Information and<br>Communications<br>Technology

## Introduction

In October 2023, the third edition of the National Certificate of Education (NCE) assessment was administered to a total 14324 candidates. This includes candidates of Grade 9 from the regular programme and candidates from the Grade 9+ of the extended programme.

The NCE ICT Assessment assesses skills and competencies acquired by candidates from Grade 7 to Grade 9/Grade 9+. Candidates are assessed on the learning objectives spelt out in the Teaching and Learning syllabus (TLS, MIE 2016). The 2023 ICT assessment catered for students of all abilities, with different types of questions to allow each candidate to demonstrate the competencies that he/she has acquired after nine years of continuous schooling.

This report focuses on the performance of candidates in the 2023 ICT Assessment. It highlights the difficulties which candidates encountered and suggests possible ways of improving future candidates' performance. Overall, this Grade 9 ICT Examiners' report serves as a valuable tool for teachers, students, and curriculum developers, providing insights into exam structure, common mistakes, student performance, curriculum gaps, and curriculum development.

It is recommended to read this report in conjunction with the question paper for the assessment.

## Paper Overview

The NCE ICT Assessment consists of two sections and 11 questions. The duration of the paper is 1 hour 45 minutes and carries a total of 100 marks. The paper is graded starting with items of low difficulty level to items requiring higher order thinking skills.

Table 1 gives a breakdown of the paper.

Table 1: Breakdown of the NCE ICT Assessment

| Section | Question number | Marks |
| :---: | :---: | :---: |
| A | 1 to 5 | 50 |
| B | $6-11$ | 50 |

## The Assessment Objectives

Three assessment objectives, namely knowledge and comprehension, application and analysis serve as a foundation to the design of the ICT Assessment.

AO1: Knowledge and Comprehension (50\%)
Questions assessing knowledge and comprehension evaluate the ability of candidates to recall concepts and facts related to ICT.

## AO2: Application (30\%)

Questions assessing application focus on learners' ability to apply acquired knowledge and competencies in ICT. For example, candidates are assessed on their ability use web tools for e-discussions.

AO3: Analysis (20\%)
Questions assessing reasoning require candidates to make judgements and formulate appropriate strategies in solving problems in ICT.

## General Comments

The difficulty level of the 2023 ICT assessment paper was comparable to that of 2021-2022. It is worth pointing out that the types of questions set, particularly the first few questions proved to be more accessible to the majority of candidates. More illustrations and visuals were included in the paper and the reading load was decreased. Students having difficulties in reading were thus able to demonstrate their ICT knowledge and skills more confidently. The paper also provided some questions in Section B requiring candidates to demonstrate their reasoning and analytical skills.

The percentage of candidates obtaining a grade 6 or better increased from $89.7 \%$ in 2022 to $96.3 \%$ in 2023. The percentage pass for girls was $97.9 \%$ while the percentage pass for boys was 94.6\%.

Item analysis indicates that objective-type questions such as Multiple-Choice Questions, fill-in-the blanks and matching questions set in Section A of the assessment and requiring basic
knowledge of facts and concepts were well received. These items allowed candidates to score marks and were more accessible to the majority of the candidates.

On the other hand, candidates struggled with items in Section B. Those items required them to demonstrate deeper understanding and reasoning. For instance, items on databases, spreadsheet and programming were found to be particularly challenging by many candidates. They highlighted candidates' lack of confidence and inadequate mastery of the subject.

There were some well-presented scripts. Candidates appeared to have had sufficient time to complete the paper. However, many scripts were found to be incomplete with answer spaces left blank, especially in Section B.

## A word on the Extended Stream

The percentage of the number of candidates obtaining a grade 6 or better in the Extended Stream increased from 35.9 \% in 2022 to 66.8\% in 2023.
An increase in the use of illustrations and visuals, the use of simple language and the types of questions set made the NCE ICT assessment were more accessible. Candidates were given a fair opportunity to demonstrate the skills and competencies that they have acquired in ICT. The section A of the paper was quite well-answered, but the items in Section B were often ignored and left unattempted.

## Key messages

(1) It is important that students are able to link different knowledge from different topics. Knowledge from other topics are often required when answering certain questions.
(2) Candidates are advised to use appropriate technical terms when answering questions.
(3) The following areas were particularly challenging to candidates.

## Spreadsheet

Candidates struggled to understand:

- Formula, particularly those including IF.
- the values returned by functions such as COUNTIF ().


## Databases

- Candidates seemed unfamiliar with terms such as records, fields, or primary key.
- The interpretation and filling of the query by example grid is problematic.


## Practical problem solving and programming

Candidates had difficulties in:

- understanding terms such as sequence and selection.
- filling of the trace table where they cannot differentiate between the variable and the values to be written.
- writing of programming language code


## Specific Comments

## Section A

## Question 1

This question comprised 15 multiple choice questions. They were generally well-answered. They were set at the basic level assessing mainly knowledge and comprehension.

Parts (j), (m) and (o) proved to be particularly challenging for candidates of the extended programme.

Table 2 lists the answers to the items in Question 1.
Table 2: Answer key to the items in Question 1

| Item Number | Key | Item Number | Key |
| :---: | :---: | :---: | :---: |
| $(\mathrm{a})$ | D | (i) | C |
| $(\mathrm{b})$ | D | $(\mathrm{j})$ | B |
| $(\mathrm{c})$ | $\mathbf{C}$ | $(\mathrm{k})$ | B |
| $(\mathrm{d})$ | $\mathbf{A}$ | $(\mathrm{l})$ | $\mathbf{C}$ |
| $(\mathrm{e})$ | $\mathbf{C}$ | $(\mathrm{m})$ | $\mathbf{D}$ |
| $(\mathrm{f})$ | $\mathbf{D}$ | $(\mathrm{n})$ | $\mathbf{D}$ |
| $(\mathrm{g})$ | $\mathbf{C}$ | $(\mathrm{o})$ | $\mathbf{A}$ |
| $(\mathrm{h})$ | $\mathbf{D}$ |  |  |

The performance of candidates in general was good.

## Part (a)

Most candidates successfully identified the printer as a device that produces a hard copy.

## Part (b)

The majority of candidates could recall that a laptop was a microcomputer.

## Part (c)

Most candidates, including those from the extended programme seemed to be familiar with a headphone.

## Part (d)

This part was well answered by the majority of candidates. They successfully identified the close button.

## Part (e)

Performance of most candidates was satisfactory. They correctly recognized a pen drive as a secondary storage device.

## Part (f)

Candidates were expected to recognise the formatting applied to the word 'March' in the following date:

## 29 March 2022

Although many were able to choose the correct option D: Bold and Underline, quite a few chose option B: Underline. This indicates that some candidates rushed to choose an option and thus did not notice that the word 'March' was both in bold and underlined.

## Part (g)

This was the least well-answered part of this question. Many candidates did not know the exact meaning of a backup. They wrongly chose option D: print a copy of. This indicates the misconception that some candidates consider a hard copy as a backup. Option C: keep a copy of, was the expected answer.

## Part (h)

Recognising Google as a search engine was not a challenge to most candidates.

## Part (i)

Item analysis points out that $25 \%$ of the candidates had difficulties in identifying the Enter Key. They tend to opt for the space bar.

## Part (j)



More than $25 \%$ of candidates confused between the thought balloon and the General Speech balloon. They could not recognise the correct speech balloon which was illustrated.

## Part (k)

Most Candidates were able to identify the correct sitting posture.

## Part (I)

Identifying Android as an operating system used in smart phones was quite easy for candidates.

## Part (m)

Most candidates demonstrated understanding that 'hacking a computer' is a computer crime.

## Part ( n )

Many candidates performed well in this part. They knew that the System Security Management helps to prevent unauthorized access to a computer.

## Part (o)

Although many candidates chose the correct tab (Crop) used to remove unwanted parts of a picture, some candidates wrongly chose option B which was the illustration of Format Painter.

## Question 2(a)

This item was well-received by most of candidates. They were expected to label icons used in Word Processing. A list of words was given.


Most candidates appeared familiar with the icons and could easily identify the icons representing Cut, Print and WordArt.

However, around one fifth of the candidate's population had difficulties in identifying the copy button and they labelled it as Save.

## Question 2(b)

This was a fill-in-the-blank question with words given. Most candidates fared well in question $2(\mathrm{~b})$. The state ments were straightforward and candidates could easily relate and recall basic facts. A few candidates chose the word 'network' instead of 'power' for part(i).


## Question 3

Ten short statements were given and candidates were expected to tick True or False next to them.

|  | Statement | Answer | Comment |
| :---: | :---: | :---: | :---: |
| (b) | Wifi means wireless fidelity. | T | $75 \%$ of the candidates gave the correct answer. |
| (c) | Page border adds colour to a page | F | Well attempted by most candidates. |
| (d) | Food and drinks are allowed in the Computer Lab | F | The majority gave the correct answer. |
| (e) | A handout is a hardcopy of PowerPoint slides. | T | $25 \%$ of candidates did not know that the statement was true. |
| (f) | Online forums are websites used for debates. | T | This part was well done by most candidates. |
| (g) | Any information collected should be safe. | T | The majority gave the correct answer. |
| (h) | It is ethical to use someone else's password. | F | Around 20\% of the candidates gave the wrong answer. |
| (i) | A spreadsheet is used to create charts. | T | This was the least well-answered part. Only $50 \%$ realised that spreadsheet is used to create charts. |
| (k) | A paper jam prevents a printer from working properly. | T | This part was mostly well answered by candidates. |
| (I) | One byte is equal to 4 bits. | F | Only $60 \%$ of the candidates knew that this statement was false. |

## Question 4(a)

Candidates were required to classify Digital Camera, Joystick, Blu-Ray Disc and 3D printer as Input, Output or Storage devices.

The candidates' performance on this question was generally satisfactory, and the item analysis indicates that it was within reach for a considerable portion of the candidate population. Some candidates could not identify the Joystick as an input device and a few candidates identified a digital camera as a storage device.

The following answers were expected:
Digital Camera: Input device
Joystick: Input device

## Blu-Ray Disc: Storage device

3D printer: Output device

## Question 4(b)

In this question candidates had to match terms from column A to their correct definitions in Column B. This item was well-answered by many candidates, except for a few parts.

| Column A |  |
| :--- | :--- |
| (i) | Terminal |
| (ii) | Software |
| (iii) | Keyboard |
| (iv) | Repetitive Strain Injury |
| (v) | Virus |
| (vi) | Intranet |
| (vii) | Temperature Sensor |


| Column B |  |
| :--- | :--- |
| 1 | is used to enter text. |
| 2 | causes pain in wrists and fingers. |
| 3 | is a private network. |
| 4 | is the name given to computer <br> programs. |
| 5 | is a computer connected to a <br> network. |
| 6 | is used in automatic cooling <br> systems. |
| 7 | connects networks across the <br> world. |
| 8 | is a software that can damage a <br> computer. |

The common mistakes that candidates made were:

- Around $25 \%$ of the candidates wrongly matched the part(ii) of Column $A$ to definition numbered 8 in Column B. A possible reason could be that in the definition numbered 8 , the word software was used.
- Around $40 \%$ of the candidates did not seem to know that intranet (part (vi)) is a private network.


## Question 5(a)

Candidates were required to label a few icons from a given list of words and performance was very good for the majority of candidates. The icons were familiar to the candidates.

| Centre | Bullets | Justify | Align left | Numbering |
| :---: | :---: | :---: | :---: | :---: |


| 三 | .....................fy ................... |
| :---: | :---: |
| 1. $3 .-$ 3. | ..... |
| $\overline{\overline{\#}}$ | $\ldots$ |
| :二 | ............................................ |

## Question 5(b)

Below is the expected answer for question 5(b).


Performance in this part of the question was satisfactory. Three out of five candidates were able to number the steps to restore a deleted file from the recycle bin. Among those who could not get full marks, some could order two steps correctly. Below is the expected answer.

## Section B

## Question 6

The specifications of a computer system were provided. Candidates were expected to study the specifications and answer to questions that followed.


PC name IDG-JIM-WORK-PC
Rename this PC

Organisation
Manage or disconnect from work or school

| Edition | Windows 10 Pro |
| :--- | :--- |
| Version | 1703 |
| OS Build | 15064.674 |
| Product ID |  |
| Processor | Intel(R) Core(TM) i5-6600K CPU @ 3.50 GHz 3.50 <br> GHz |
| Installed RAM | 8.00 GB |
| System type | 64 -bit operating system $\times 64$-based processor |
| Pen and touch | No pen or touch input is available for this display |

## Part (a)

Tick $(\checkmark)$ the correct processor model used in this computer system.

Intel Core i3 $\square$ Intel Core i5 $\square$ AMD Pro $\square$
Most candidates correctly ticked Intel Core i5. Among those who did not tick the correct answer AMD Pro was a common choice.

## Part (b)

> What is the speed of the processor?

7 out of 10 candidates could correctly figure out that 3.50 GHz was the speed of the processor. It was common to see 'Intel(R) Core (TM) i5-6600K CPU @ 3.50GHz' as an answer. This indicated that those candidates could not extract the correct information from the specifications but realized that this line contains the information required. Candidates must be clear and specific in their answers.

## Part (c)

What is the memory size of the computer system?

Most candidates were successful in giving the correct answer 8 GB.

## Part (d)

Which edition of the operating system is used in this computer system?

The expected answer was 'Windows 10 Pro'. Around $75 \%$ of the candidates gave the correct answer. Common wrong answers were '64-bit operating system' or 'Windows 10'.

## Part (e)

## Give one function of an operating system.

This was the least well answered item of this question. Only half of the candidates could give a function of an operating system. In some cases, candidates wrote, 'No pen or touch input is available' as an answer. They gave a feature that was not available in the computer system rather than giving a function of an operating system. Candidates should be encouraged to read and understand questions before writing their answers and they should also avoid writing their answers hastily.

## Question 7(a)

This fill-in-the blank question with words given proved to be quite challenging for many candidates. More than $60 \%$ of the candidates could not score full marks. Many could not figure out the difference between 'page break' and 'section break' and consequently parts (i) and (iii) were wrongly done by many.

For part(ii) many candidates gave 'view' as an answer instead of 'layout'.
Below are the items set for question 7(a) and their expected answers.
(i) A Page break ...................................... ised to separate contents between pages.
(ii) The $\qquad$ tab is used to change the orientation of a page from portrait to landscape.
(iii) $\qquad$ into parts allowing one to use different formatting on each page.

## Question 7(b)

In this section of the question, candidates were presented with the table of contents from a textbook and were required to respond to questions based on it. Overall performance of most candidates was very good.
Contents
Chapter 1.0 Introduction ..... 2
Chapter 2.0 Project Requirements ..... 7
Chapter 3.0 The History of Grammar ..... 12
Chapter 4.0 Parts of Speech ..... 18
4.1 Nouns ..... 21
4.2 Verbs ..... 24
4.3 Adjectives ..... 27
4.4 Adverbs ..... 31
Chapter 5.0 Sentences ..... 35
5.1 Complex Sentences ..... 39
5.2 Compound Sentences ..... 45
Chapter 6.0 Paragraphs ..... 51
6.1 Descriptive ..... 56
6.2 Expository ..... 60
6.3 Narrative ..... 65
6.4 Persuasive ..... 71
Chapter 7.0 Conclusion ..... 76

## Part (i)

$\square$

This was the least well-answered item in this question. Only half of the candidates' population was able to identify the tab which is used to insert table of contents. The most common wrong answer was 'mailings. (Answer: References)

Parts (ii) to (iv)
The majority of candidates performed well in part(ii) to part(iv).
(ii) On which page does Chapter 3 start?
(iii) How many chapters are there in this textbook?
(iv) What is the name of the chapter that starts on page 51?
$\qquad$
(v) What is the name of the sub-chapter 6.3 ?
(Answers: (ii) 12 (iii) 7 (iv) paragraphs (v) Narrative)

## Question 8

## Part (a)

Name each type of network topology shown in the diagram below.


Around $50 \%$ of the candidates could name Mesh and Tree topology respectively. Among those who were not successful, 'Star topology' and 'Bus topology 'were the most common wrong answers given.

## Part(b)(i) (ii)

(i) Explain the term social networking.
(ii) Give two examples of social networking websites.

Whilst only around $35 \%$ of the candidates could explain the term social networking, it is interesting to note that around $60 \%$ could successfully give two examples of social networking websites.

Many candidates gave 'communication with friends' to explain social networking.

## Part(b)(iii)

(iii) Give two ways to communicate on a social networking website.

The performance was fair for this part. Around $50 \%$ of the candidates were successful in giving two ways of communicating on a social networking website.

## Part(c)

Give two safe practices that should be adopted when using a social networking website.

Responses to this question did not meet the expected standard. Many candidates gave two security issues instead of safe practices. Only around $40 \%$ of the candidates could score full marks.

## Question 9

Spreadsheet remains a challenging topic for many candidates who struggled to answer these questions. Many candidates do not seem familiar and lack confidence while dealing with spreadsheet.

Candidates were expected to answer questions, based on a given spreadsheet which showed the data about sales of a JMS Candy Shop.

| 4 | A | B | C | D | E | F |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | JMS Candy Shop |  |  |  |  |  |
| 2 | Item | Cost Price | Selling Price | Profit Per Item | Number in stock | Reorder stock |
| 3 | Bounty | 26.50 | 28.50 | 2.00 | 167 | NO |
| 4 | Twix | 18.00 | 22.00 | 4.00 | 145 | NO |
| 5 | Galaxy | 22.50 | 25.00 | 2.50 | 32 | YES |
| 6 | KitKat | 32.00 | 32.50 | 0.50 | 159 | NO |
| 7 | Mars | 15.50 | 19.50 | 4.00 | 12 | YES |
| 8 |  |  |  |  |  |  |
| 9 |  |  |  |  | Items to be reordered |  |

## Part(a)

Write down which cell contains the following information:
(i) Cost Price of Twix:
(ii) Selling Price of Bounty:

The expected answers were 'B4' and 'C3' respectively. Less than 40\% of the candidates could give the correct answers. They confused between the content of the cells (cell values) and the cell address.

## Part(b)

Tick $(\checkmark)$ the correct formula that has been used in cell D3 to calculate the Profit Per Item on Bounty.

$$
=\mathrm{B} 3 / \mathrm{C} 3 \square=\operatorname{MiN}(\mathrm{B} 3: \mathrm{C} 3) \square=\mathrm{C} 3-\mathrm{B} 3 \square
$$

Around $55 \%$ of the candidates ticked the correct answer, C3-B3.
The most common wrong answer was $=\mathrm{MIN}(\mathrm{B} 3: \mathrm{C} 3)$.

## Part (c)

Write the formula that can be used in cell D8 to calculate the total Profit Per Item.

Only one in three candidates was able to write the correct formula.
The expected answer was =SUM (D3:D7)
Many used the word ADD instead of SUM.

## Part(d)

When the number of a particular item is less than 50, the shop needs to reorder the stock.

Complete the following formula to be used in cell F3 to find out whether there is a need to reorder stock or not.

$$
=\mathrm{IF}(\mathrm{E} 3<50,
$$

The expected answer was, = IF (E3 < 50, "YES", "NO")
Only around one in ten candidates were successful in scoring full or partial marks.
Many candidates did not attempt this part. In general, candidates were not careful about:

- Writing the formula using uppercase
- The sequence of writing YES / NO
- The inclusion of double quotes


## Part (e)



This part was correctly answered by around 50\% of the candidates. Some wrote only one correct answer.

The expected answers were, E5 and E7.

## Part (f)

$$
\text { The formula }=\text { COUNTIF (F3:F7,"YES") is used in cell F9. }
$$

What will be the output?

Around $30 \%$ of candidates could give the correct answer.
Some candidates gave the content of the cells, while others wrote 'YES' as their answer.

## Question 10

This question was designed to assess knowledge and understanding of databases. It proved to be problematic for many candidates.

## Part(a)

This part was an objective type question, where statements were given and candidates had to decide whether those statements were True or False.

State whether each of the following statements on databases is True or False. An example is given.
(i) Retrieving information from a computerised database is difficult. False
(ii) A primary key is a field which uniquely identifies a record.
(iii) Each row of a database table represents a record.

Many candidates demonstrated stronger performance in this part compared to other spheres of the question. Around $70 \%$ of the candidates scored full marks.

However, there are indications that some candidates were not familiar with or encounter problems in understanding terms like 'Primary Key' or 'Record'.
(Ans: (ii) True (iii) True)

## Part (b)

In this part, candidates had to answer question based on the computerized database that stores details on the departure of flights shown below. This part proved to be difficult on the whole, suggesting that for many candidates, database is complex and difficult to understand. Candidates of all abilities struggled to attempt questions on databases.

| FLIGHT_ID | FLIGHT_NAME | DEPARTURE | LOCATION | DESTINATION |
| :---: | :---: | :---: | :---: | :---: |
| MK-054 | Air Mauritius | $04: 00$ | Mumbai | Mauritius |
| MK-001 | Air Mauritius | $08: 00$ | Mauritius | Rodrigues |
| AS-102 | Air Austral | $09: 00$ | St Denis | Mauritius |
| SP-205 | Singapore <br> Airlines | $23: 00$ | Mauritius | Singapore |
| EM-234 | Fly Emirates | $23: 00$ | Dubai | Mauritius |
| BA-458 | British Airways | $07: 00$ | Mauritius | London |

## Part(b)(i)

## How many fields are there in the FLIGHTS table?

Performance was fair. Slightly less than half of the candidates were successful in answering this part. It appears that candidates confused between fields and records.

Many candidates gave ' 6 ' as their answers instead of ' 5 '.

The following search condition was entered using a query by example grid.


Show what the output would be.

Very few candidates demonstrated firm understanding in showing the output.
It was noted that many candidates did not attempt this part. At times, those who tried scored a partial mark. Many candidates failed to order the output and included additional field as part of their answers. Some answers were written in the grid, and not in the answer space.
(Answer: EM - 234 SP - 205)

## Part(b)(ii)

This part proved to be challenging for many candidates. Only one third of the candidates scored full marks. Candidates appeared uncertain as to where to incorporate the criteria. However, a handful of candidates were able to earn a partial score.

The expected answer is given below.

## Complete the query by example grid below to select and show the name of flights located in Mauritius.



## Question 11

Questions on programming are found to be challenging by many candidates at NCE.
Performance was quite poor this year as well. It was apparent from candidates' responses that they lacked confidence and did not have a firm understanding of the basics of Programming.

## Part (a)

This part required the candidates to match the terms in column 1 to their correct description in column 2.
Below is the expected answer.


It was interesting to note that part(a) proved to be quite scoring for around two thirds of the candidates' population. A low number of candidates scored a partial mark.

## Part (b)

In this part candidates were required to study and dry run the flow chart shown below. Very few candidates attempted this part. Many blank answer spaces were noted.


The expected answer is given below:

| P | Q | Output |
| :--- | :--- | :--- |
| 18 | 6 | P is large |
| 6 | 14 | P is small |
| 12 | 8 | P is large |

Some common mistakes were:

- Quotes included
- Writing 'Large' or 'Small'
- Writing 'Yes' or 'No'

Candidates were unsure about how to fill the column for output.

## Part (c)

Candidates had to read the Python command below and answer questions that followed.
Line 1 >>> totalprice $=2010$
Line $2 \ggg$ if totalprice $>2000$ :
Line 3 >>>print('You get a discount')
Line 4 >>> else:
Line 5 >>>print('You do not get a discount')

Performance in this part was relatively poor across all abilities.

## Part(c)(i)

What will be the output if the above Python code is run?

Only around $20 \%$ of the candidates could answer correctly. A few managed to score a partial mark.
(Answer: You get a discount)

## Part(c)(ii)

> At Line 1 , rewrite the command that will allow a user to enter the value for total price from the keyboard.

Only a handful of candidates could correctly answer this question.
Candidates did not seem to understand the importance of int () as part of the statement.

Answer: total price = input ('Enter Total Price')

## Conclusions

The improvement in the overall performance in 2023 is quite encouraging. It is important to encourage students to practice open-ended questions. More emphasis should be laid on topics like Spreadsheet, Databases and Programming.

Questions that were well illustrated with less reading load proved to be very helpful to candidates.

