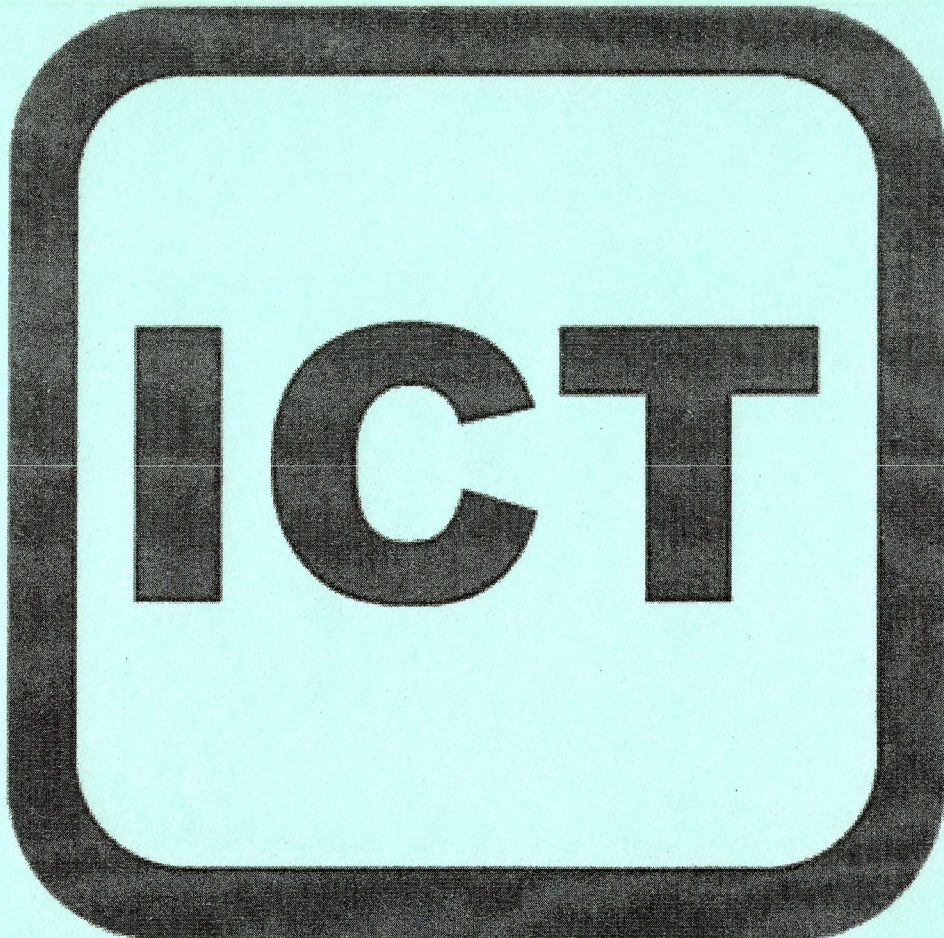Department of Examinations - Sri Lanka

G.C.E. (O/L) Examination - 2019

# 80 - Information and Communication Technology

Marking Scheme

**ICT**

This document has been prepared for the use of Marking Examiners. Some changes would be made according to the views presented at the Chief Examiners' meeting.

**Amendments to be included**

# G.C.E. (O/L) Examination - 2019

# 80 - Information and Communication Technology

## Calculating final marks

**Paper I**     -     **40 marks**

**Paper II**     -     **60 marks**

**Final marks -**     **100 marks**

# Common Techniques of Marking Answer Scripts.

It is compulsory to adhere to the following standard method in marking answer scripts and entering marks into the mark sheets.

1.  Use a red color ball point pen for marking.  (Only Chief/Additional Chief Examiner may use a mauve color pen.)

2.  Note down Examiner's Code Number and initials on the front page of each answer script.

3.  Write off any numerals written wrong with a clear single line and authenticate the alterations with Examiner's initials.

4.  Write down marks of each subsection in a $\triangle$ and write the final marks of each question as a rational number in a $\square$ with the question number.  Use the column assigned for Examiners to write down marks.

**Example:**      **Question No. 03**

(i)     ................................................  $\checkmark$     $\triangle \frac{4}{5}$

(ii)    ................................................  $\checkmark$     $\triangle \frac{3}{5}$

(iii)   ................................................  $\checkmark$     $\triangle \frac{3}{5}$

$\boxed{03}$ (i) $\frac{4}{5}$ + (ii) $\frac{3}{5}$ + (iii) $\frac{3}{5}$ = $\boxed{\frac{10}{15}}$

## MCQ answer scripts: (Template)

1.  Mark the correct options on the template according to the Marking Scheme.  Cut off the marked windows with a blade.  Cut off the cages for Index Number and the number of correct options so as to be able to keep the template correctly on the answer script.  Cut off a blank space to the right of each options column to mark the answers.  Submit the prepared template to the Chief Examiner for approval.

2.  Then, check the answer scripts carefully.  If there are more than one or no answers marked to a certain question write off the options with a line.  Sometimes candidates may have erased an option marked previously and selected another option.  In such occasions, if the erasure is not clear write off those options too.

3.  Place the template on the answer script correctly.  Mark the right answers with a '$\checkmark$' and the wrong answers with a 'X' against the options column.  Write down the number of correct answers inside the cage given under each column.  Then, add those numbers and write the number of correct answers in the relevant cage.

**Structured essay type and assay type answer scripts:**

1. Cross off any pages left blank by candidates. Underline wrong or unsuitable answers. Show areas where marks can be offered with check marks.

2. Use the right margin of the overland paper to write down the marks.

3. Write down the marks given for each question against the question number in the relevant cage on the front page in two digits. Selection of questions should be in accordance with the instructions given in the question paper. Mark all answers and transfer the marks to the front page, and write off answers with lower marks if extra questions have been answered against instructions.

4. Add the total carefully and write in the relevant cage on the front page. Turn pages of answer script and add all the marks given for all answers again. Check whether that total tallies with the total marks written on the front page.

**Preparation Of Mark Sheets.**

Except for the subjects with a single question paper, final marks of two papers will not be calculated within the evaluation board. Therefore add separate mark sheets for each of the question paper. Enter paper I marks in "Total Marks" column of the mark sheet and write them in words as well. Enter paper II Marks in the " Total Marks" Column and include the relevant details. For the subject 43 Art, marks for Papers I,II and III should be entered numerically in the mark sheets.

For subjects 21 Sinhala language and literature and 22 Tamil Language and literature, paper I marks once entered numerically should be written in words. For the papers II and III enter the detailed marks separately and put the total in each paper in the relevant column.

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Final marks for paper I, paper II or paper III should always be rounded up to the nearest whole number and they should never be kept as decimal or half values.

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# Information and Communication Technology
## MARK SCHEME

### Table of Contents

*Instructions:*

1.  Acceptable alternatives for a given word or set of words are separated by slashes (/).

2.  Alternative answers are separated by double slashes (//).

3.  Marks should **not** be given for a question if **more** than the required number of answers are written by the student.

4.  ✓ indicates to consider as correct if the student's intention is correct.

5.  ⬅A indicates that any credit for this should be given only if A is correct ▸

ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව
இலங்கைப் பரீட்சைத் திணைக்களம்
අ.පො.ස.(සා.පෙළ) විභාගය - 2019
க.பொ.த (சா.தர)ப் பரீட்சை - 2019

| විෂයය අංකය<br>பாட இலக்கம்<br>பாடம் | 80 | විෂයය<br>விஷயம் | Information and Communication Technology |

## I පතුය - පිළිතුරු
## Iபத்திரம் - விடைகள்

| ප්‍රශ්න<br>අංකය<br>வினா<br>இல. | පිළිතුරු අංකය<br>விடை இல. | ප්‍රශ්න<br>අංකය<br>வினா<br>இல. | පිළිතුරු අංකය<br>விடை இல. | ප්‍රශ්න<br>අංකය<br>வினா<br>இல. | පිළිතුරු අංකය<br>விடை இல. | ප්‍රශ්න<br>අංකය<br>வினா<br>இல. | පිළිතුරු අංකය<br>விடை இல. |
|---|---|---|---|---|---|---|---|
| 01. | 03 | 11. | 02 | 21. | 03 | 31. | 01 |
| 02. | 03 | 12. | 04 | 22. | 01 | 32. | 02 |
| 03. | 04 | 13. | 01 | 23. | 02 | 33. | 02 |
| 04. | 02 | 14. | 01 | 24. | 04 | 34. | 02 |
| 05. | 01 | 15. | 04 | 25. | 04 | 35. | 04 |
| 06. | 03 | 16. | 03 | 26. | 04 | 36. | 04 |
| 07. | 02 | 17. | 01 | 27. | 03 | 37. | 04 |
| 08. | 03 | 18. | 01 | 28. | 01 | 38. | 01 |
| 09. | 03 | 19. | 03 | 29. | 04 | 39. | 04 |
| 10. | 03 | 20. | 01 | 30. | 02 | 40. | 02 |

විශේෂ උපදෙස්          එක් පිළිතුරකට ලකුණු  } බැගින්
விசேட அறிவுறுத்தல்    ஒரு சரியான விடைக்கு  } புள்ளி வீதம்          **01**

මුළු ලකුණු/ மொத்தப் புள்ளிகள்  **01×40= 40**

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පහත තිඳුසුතෙහි දැක්වෙන පරිදි බහුවරණ උත්තරපතුයේ අවසාන තීරුවේ ලකුණු ඇතුළත් කරන්න.
කීඤ් කුறிப்பிடப்பட்டிருக்கும் உதாரணத்திற்கு அமைய பல்தேர்வு வினாக்களுக்குரிய புள்ளிகளை பல்தேர்வு
විනාப්පத්திரත්තின් இறுதியில் பதிக.

නිවැරදි පිළිතුරු සංඛ්‍යාව

| 25 |
|----|
| 40 |

I පතුයේ මුළු ලකුණු

| 25 |
|----|
| 40 |

# Paper II (compulsory question)

1.        (i)--------------------------------------------------------------------------------------------------------[2]

**One mark** per any of the following. **Maximum of two** of them.
- average rainfall
- maximum rainfall
- minimum rainfall
- mode of the rainfall
- median of the rainfall
- rainfall variation // no. of rainy days // no. of continuous rainy days
- rainfall predictions for future
- total rainfall

(ii)--------------------------------------------------------------------------------------------------------[2]

Port label to port name match

**Two marks** for **4-5** correct, **one mark** for **1-3** correct. **Exact spelling** important for B, C, D and E.

A – Audio ✓ ,        B – RJ45,        C – HDMI,        D – USB,        E - VGA

(iii)        (a)--------------------------------------------------------------------------------------------[1]

Convert $1260_{10}$ to its octal equivalent

$2354_8$        //        2354

(b)--------------------------------------------------------------------------------------------[1]

Convert $A1_{16}$ to its binary equivalent

$1010\ 0001_2$    //        1010 0001

(iv)        (a) ------------------------------------------------------------------------------------[1]

Draw a truth table with two columns A and P

| A | P |
|---|---|
| 0 | 1 |
| 1 | 0 |

(b)--------------------------------------------------------------------------------------------[1]

Boolean expression for S

The dot is not compulsory.

$S = X.Y' + X'.Y$        //        $S = X.\overline{Y} + \overline{X}.Y$

**(v)**--------------------------------------------------------------------------------------------------------**[2]**

<div style="text-align:right">Write down folder names</div>

**Two marks** for **4-5** correct, **one mark** for **1-3** correct.

A – Studies,   B – Science ⬅ A , C – Music,  D – Photos,  E – 2019 ⬅ D   ✓

**(vi)**------------------------------------------------------------------------------------------------------**[2]**

<div style="text-align:right">Formatting task to tool icon matching</div>

**Two marks** for **3-4** correct, **one mark** for **1-2** correct.

A – Q,        B – S,        C – P,        D - U                    ✓

**(vii)    (a)**----------------------------------------------------------------------------------------**[1]**

<div style="text-align:right">Which two fields make the primary key?</div>

**Exact spelling** important. Ignore case and space defects.

Month            SalesRepID

**(b)**----------------------------------------------------------------------------------------------**[1]**

<div style="text-align:right">Most suitable data types for Month and TotalSales fields?</div>

<div style="text-align:right">✓</div>

Month: Text          TotalSales: Currency

**(viii)**------------------------------------------------------------------------------------------------------------------[2]

<div style="text-align:right">Match P, Q,R,S in the flowchart to statement numbers</div>

**Two marks** for **3-4** correct, **one mark** for **1-2** correct.

P – 1,            Q – 4,            R – 3 ⟸ ,    S – 2 ⟸

If the student had written down the statements, then to be considered as correct, each
correctly selected statement must be exactly written as in the question.

**(ix)**------------------------------------------------------------------------------------------------------------------[2]

<div style="text-align:right">Select proper word for blank</div>

**Two marks** for **3-4** correct, **one mark** for **1-2** correct.

*A* - pixel,            B – vector,      C – Lossy,      D – GIF          ✓

**(x)**------------------------------------------------------------------------------------------------------------------[2]

A - Can Gihan see Hameed is a recipient? B – Can Sharma see Gihan as a recipient?

**One mark** per each

A – T,      B – F                                                           ✓

**2.**   **(i)**------------------------------------------------------------------------------------------------**[1]**

> Match risks to solutions

**One mark** for 3-4 correct.

A – P,      B – U,        C – R,        D - T               ✓

    **(ii)**------------------------------------------------------------------------------------------------**[2]**

> Explain 3R technique w.r.t. reducing e-waste

**Any two** from the following with **one mark** for each. Explaining is important.
**No mark** awarded for just writing *reduce, reuse, recycle.*

- Reduce - Reduce unnecessary purchase/use/accumulation of electronic devices

- Reuse – Reuse/sell/donate/repair old electronic devices without discarding

- Recycle – Recycle the components in irreparable electronic devices

    **(iii)**     **(a)**------------------------------------------------------------------------------------**[1]**

> A person wants to protect a spreadsheet in his computer from unauthorized access. The computer is not connected to the Internet. Write one way how he could do this.

using a password (for the computer account / spreadsheet)

         **(b)**------------------------------------------------------------------------------------**[1]**

> A person cannot afford to buy licensed spreadsheet software for his computer. Write one thing that he could do.

Any **one** of the following:

- installing open source spreadsheet / LibreOffice Calc / OpenOffice Calc software

- using a free cloud based spreadsheet / Google Sheets software // using cloud computing

**(c)** ---------------------------------------------------------------------------------------------------------[1]

> Write down one benefit that the students can obtain through this LMS

Any **one** of the following:
- obtaining study notes / supplementary study material
- getting feedback / results (from teachers)
- online assignment / tutorial submissions
- participating in online quizzes
- participating in discussions / forums // communicating with teachers / students
- getting notices
- studying convenience // less paper work // anytime/anywhere studying // studying at own pace
- learn well due to multi-modal / novel experience

**(d)** ---------------------------------------------------------------------------------------------------------[1]

> A student wants to include in his essay, a part of the content of a website without intellectual property violations. How can he do it?

Any **one** of the following:
- citing / mentioning the rightful owner and his (her) information
- quoting (with inverted commas) and giving the details of the owner
- referencing / listing of resources from which the information was collected
- obtaining permission from author (and indicating it)

**(e)** ---------------------------------------------------------------------------------------------------------[2]

> A manager in a Colombo office wants to have a video conference with managers in Jaffna and Matara branches without everybody coming to a single location. Write down the requirements needed in these locations.

**Two marks** for any **one** of the following. If incomplete, give **one mark**.
- Multimedia computer / laptop **and** communication software **and** Internet
- Computer (with audio hardware) **and** webcam **and** communication software **and** Internet
- Video conferencing kit **and** Internet

**(iv)** --------------------------------------------------------------------------------------------------------[1]

> An office wants to create a computer network using a *hub*, three computers (named *server, computer A, computer B*) and a *printer* using a *star topology. Draw the topology diagram.*
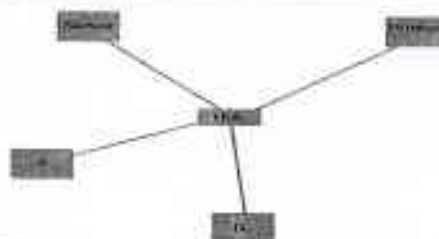
**3.**   **(i)**   **(a)**-------------------------------------------------------------------------------------[1]

<div style="text-align: right;">Primary key of team table</div>

> **Exact spelling** important. Ignore case and space defects.
> TeamID

**(b)**-------------------------------------------------------------------------------------[1]

<div style="text-align: right;">Two possible primary keys in the Player table</div>

> **Exact spelling** important. Ignore case and space defects.
> PlayerID,        StudentID

**(ii)**   **(a)**----------------------------------------------------------------------------[2]

Which tables need to be updated to add a new student of the school to the U17 Cricket team?

> **One mark** per each. **Exact spelling** important. Ignore case and space defects.
>
> Player,        Player_Team

**(b)**-------------------------------------------------------------------------------------[1]

Which tables need to be updated to make Nimal Fernando the captain of the U19 Football team?

> **Exact spelling** important. Ignore case.
> Team

**(iii)**   **(a)**----------------------------------------------------------------------------[2]

<div style="text-align: right;">Record entries needed for ii (a) above</div>

> **One mark** per each. Ignore case and space defects.
> Player→ (P1120, Piyal, Alwis, S4205)                    ✓
> Player_Team→ (T2, P1120, 2019)                           ✓

**(b)**-------------------------------------------------------------------------------------[2]

Record entries needed for the creation of U17 Football team with Shane Almaida as captain

> **One mark** per each (Ignore case and space defects)
> Team→ (T7, Football, U17, P1005)                         ✓
> Player_Team → (T7, P1005, 2019)                          ✓

**(iv)**----------------------------------------------------------------------------------[1]

Which tables are to be joined to write a query to find the name of the U19 Cricket captain?

> **Exact spelling** important. Ignore case.
> Team,        Player

**4.**   **(i)** -----------------------------------------------------------------------------------------------------------[3]

<div align="right">
| Match statement labels to terms |
</div>

**Three marks** for **5-6** correct, **Two marks** for **3-4** correct, **one mark** for **1-2** correct.

A – DNS Service,   B – FTP,   C – SMTP,   D – lk,   E – Search engines,   F – @   ✓

**(ii)** ----------------------------------------------------------------------------------------------------------------[2]

<div align="right">
| Write down examples for  software, languages, etc. |
</div>

**Two marks** for **3-4** correct, **one mark** for **1-2** correct.

A – Mozilla firefox,       B – PHP,       C – Kompozer,       D – Joomla   ✓

**(iii)** ---------------------------------------------------------------------------------------------------------------[5]

<div align="right">
| Select html tags |
</div>

**Exact spelling** important.

| **Five marks** | for | **9-10** correct |
|---|---|---|
| **Four marks** | for | **7-8** correct |
| **Three marks** | for | **5-6** correct |
| **Two marks** | for | **3-4** correct |
| **One mark** | for | **1-2** correct |

| 1 | - | head |
|---|---|---|
| 2 | - | h2 |
| 3 | - | img |
| 4 | - | p |
| 5 | - | tr |
| 6 | - | th |
| 7 | - | td |
| 8 | - | ul |
| 9 | - | ol |
| 10 | - | href |

**5.**    **(i) and (ii)**----------------------------------------------------------------------------------------------

(i) Formula for C43 to calculate average mark for Subject 1

(ii) After copying above formula, write down what will appear in D43

| | (i) | (ii)<br>Mark this **only if** (i) correct |
|---|---|---|
| | =average(C3:C42) | =average(D3:D42) |
| **or** | =average(C42:C3) | =average(D42:D3) |
| *Marks* | [2] | [1] |

**(iii)**        **(a) and (b)**-----------------------------------------------------------------------------------

(a) Formula for F3 to compute Kamal's z-score for Subject 1

(b) Copied formula for F42 to compute Kahn's z-score for Subject 1

| | (a) | (b)<br>Mark this **only if** (a) correct |
|---|---|---|
| | =(C3-$C$43)/$C$44 | =(C42-$C$43)/$C$44 |
| **or** | (C without preceding $)<br>=(C3-C$43)/C$44 | =(C42-C$43)/C$44 |
| **or** | (C with preceding $)<br>=($C3-$C$43)/$C$44 | =($C42-$C$43)/$C$44 |
| **or** | A combination of above | Appropriate copied output |
| *Marks* | [2] | [1] |

**(iv)**------------------------------------------------------------------------------------------------------------[2]

Formula for I3 to compute final Z score for Kamal using only COUNT and SUM

=SUM(F3:H3) / COUNT(F3:H3)    //       =SUM(H3:F3) / COUNT(H3:F3)
//        or a combination of above ▲

**Do not** give marks for **any other** complicated, long formulas.

**(v)**--------------------------------------------------------------------------------------------------------------[2]

Formula for I44 to print highest Z score

=MAX(I3:I42)        //        =MAX(I42:I3)  ▲

▲  **Note:** Reduce **one mark** if either the required cell address is given before the equal sign **or** if the equal sign is missing.

**6.**  **(i)** --------------------------------------------------------------------------------------------[2]

> Terms for SDLC related labels

**Two marks** for **4-5** correct, **one mark** for 1-3 correct.

A – S,          B – Q,          C – P,          D – R,          E – T          ✓

**(ii)**          **(a)** ---------------------------------------------------------------------------------[1]

> Write one input in the school bookshop system

Any **one** of the following:
- item code
- quantity

**(b)** ----------------------------------------------------------------------------------[2]

> Write one process

Any **one** of the following:
- computing / calculating (or similar meaning) total cost of each item
- computing / calculating (or similar meaning) total bill value

**(c)** ----------------------------------------------------------------------------------[1]

> Write one output

Any **one** of the following:
- total cost of each item
- total bill value
- final bill

**(iii)** --------------------------------------------------------------------------------------[2]

> Match system development related scenario labels to term lables

**Two marks** for **3-4** correct, **one mark** for **1-2** correct.

A – T,          B – P,          C – S,          D - R          ✓

**(iv)** --------------------------------------------------------------------------------------[2]

> List two benefits of a computer based information system over a manual information system

Any **two** of the following with **one mark** each:
- speed // efficiency // doing many tasks simultaneously
- accuracy // reliability // consistency // no errors as in manual systems
- availability // accessibility
- easy for people // never getting tired
- simultaneous usage by multiple users
- quick storage and retrieval
- efficient storage // ability to store lot of data in a small area
- ability to customize / extend easily
- confidentiality // ease of privilege separation // ease of auditing
- ease of duplication / backing up / maintenance

7.   (i)        (a)--------------------------------------------------------------------------------[2]

Output of the pseudo code when it is executed on array

        65
        (for additional output reduce one mark)

        (b)------------------------------------------------------------------------------[3]

Statements for P, Q,R

        One mark per each. Ignore case.

        P:      Is A[k] < Value?     ✓
        Q:      k = k+1  ⟵⊏⊐     ✓

        R:      Display Value        ✓

        (c)------------------------------------------------------------------------------[2]

Redraw array A after assignments

        Two marks for 4-5 correct, one mark for 1-3 correct.

| A[0] | A[1] | A[2] | A[3] | A[4] |
|------|------|------|------|------|
| 80   | 45   | 88   | 65   | 72   |

                                                                              ✓

        (ii)--------------------------------------------------------------------------------[3]

Statements for P, Q, R

        One mark per each. Ignore case.

        P:      Is L2=L3?   ✓

        Q:      DISPLAY "Isoceles triangle" ⟵⊏⊐  ✓

        R:      DISPLAY "Scalene triangle"   ✓