Candidate Name	Centre Number	Candidate Number

ZIMBABWE SCHOOL EXAMINATIONS COUNCIL

General Certificate of Education Ordinary Level

COMPUTER SCIENCE 4021/2

PAPER 2 Structured

NOVEMBER 2021 SESSION 2 hours 30 minutes

Candidates answer on the question paper

No additional materials are required.
Calculators must not be used in the examination.

Allow candidates 5 minutes to count pages before the examination.

This booklet should not be punched or stapled and pages should not be removed.

Time 2 hours 30 minutes

INSTRUCTIONS TO CANDIDATES

Write your name, centre number and candidate number in the spaces at the top of this page.
Write your centre and candidate number in the box on the top right corner of every page of this paper.

Check that all the pages are in the booklet and ask the invigilator for a replacement if there are duplicate or missing pages.

Answer **all** questions.
Write your answers in the spaces provided on the question paper using **black** or **blue** pens.

INFORMATION FOR CANDIDATES
The number of marks is given in brackets [ ] at the end of each question or part question.
The total number of marks for this paper is 100.

This question paper consists of 13 printed pages 3 blank pages.

Copyright: Zimbabwe School Examinations Council, N2021.

Candidate Name	Centre Number	Candidate Number

1 **(a)** The following table shows **four** applications which require specialist input devices.

application	**input device**	**reason for choice of device**
Virtual reality application		
a person with disability communicating with a computer system		
automatic stock control system at a supermarket		
information kiosk at an airport using a GUI (graphic user interface)		

For each application, suggest **one** input device and give a reason for your choice. [8]

(b) Write down any **one** difference between the terms **off-the-shelf** and **tailor made software**.

_____

_____ [2]

2 Give any **two** uses of computers in each of the following areas:

(a) hospital

1 _____

_____

2 _____

_____ [2]

Candidate Name | Centre Number | Candidate Number

(b) education

1 _____

_____

2 _____

_____ [2]

3 (a) Discuss any **four** benefits of online banking.

1 _____

_____

2 _____

_____

3 _____

_____

4 _____

_____ [4]

(b) Which banking transaction can be done through traditional banking but **not** through online banking.

_____ [1]

(c) State any **two** benefits of computer-aided design.

1 _____

_____

Candidate Name | Centre Number | Candidate Number

2 _____

_____ [2]

4 (a) Define the term **subprogram.**

_____

_____

_____ [2]

(b) Give any **three** advantages of subprograms.

1 _____

_____

2 _____

_____

3 _____

_____ [3]

Candidate Name	Centre Number	Candidate Number

5 Networks can be **ring, bus or star topology.**

(a) Name and draw any **two** topologies stated above.

[6]

Candidate Name	Centre Number	Candidate Number

(b) State any **one** benefit and any **one** drawback of using each of the following communication methods used in business:

(i) mobile phone

benefit _____ [1]

drawback _____ [1]

(ii) video conferencing

benefit _____ [1]

drawback _____ [1]

(iii) email

benefit _____ [1]

drawback _____ [1]

(b) Describe any other application of mobile phones besides access to the internet.

_____

_____ [2]

6 Hackers may use their technical skills to gain unauthorised access into computers or networks.

(a) State any **four** prevention measures against hacking.

1 _____

2 _____

3 _____

4 _____ [4]

Candidate Name	Centre Number	Candidate Number

(b) List any **three** protection measures against accidental data loss.

1 _____

2 _____

3 _____ [3]

(c) State any **three** unethical practices which may be done by youths when they are in an internet environment.

1 _____

2 _____

3 _____ [3]

7 A new computerised information system is designed to keep students' records.

(a) Suggest any **four** fact-finding techniques that can be used by the systems analysts.

1 _____

2 _____

3 _____

4 _____ [4]

(b) State any **four** activities carried out during the design stage of the systems development life-cycle.

1 _____

2 _____

3 _____

4 _____ [4]

Candidate Name	Centre Number	Candidate Number

(c) Describe any **one** type of test data.

_____

_____

_____ [2]

8 A school office sells stationery items to learners. A database used to keep details of stock is shown below.

Code	Item	In Stock	Sold	On Order	Price ($)
G302	Floppy disk	24	16	20	1.50
G101	Rubber	16	14	10	1.00
G102	Pencil	5	25	30	1.00
G103	Protractor	8	12	20	1.50
M101	Pen	18	22	20	2.00
M202	Compass	8	12	20	2.00

(a) Write a query that extracts items with prices less than $2.00.

[3]

(b) Write down the items output if the search below is used.

code contains "m" or [in-stock<15]

_____

_____

_____ [3]

Candidate Name	Centre Number	Candidate Number

(c) Differentiate the terms below.

(i) string and numeric data

_____

_____

_____ [2]

(ii) a field and a record

_____

_____

_____ [2]

9 The economic environment of a business plays an important role in determining its success or failure.
State any **five** economic factors that can affect computer-based businesses.

1 _____

2 _____

3 _____

4 _____

5 _____ [5]

Candidate Name	Centre Number	Candidate Number

10 Daily temperatures were recorded ten times a day by learners over a period of a year. (***assume that a year contains 365 days***)

Write an algorithm, using pseudocode or flowchart which performs the actions below.

inputs all the temperatures (ten per day)
outputs the highest temperature taken over the year
outputs the lowest temperature taken over the year
outputs the average temperature per day
outputs the average temperature per year

[10]

Candidate Name	Centre Number	Candidate Number

11 **(a)** Define the term **byte**, giving an example.

_____

_____

_____ [2]

(b) The acronym **ASCII** stands for

_____

_____ [1]

(c) **(i)** Convert
101011_2 to base ten.

[1]

(ii) Calculate

$$\begin{array}{r} 11001_2 \\ -\ \ 110_2 \\ \hline \quad\quad ?_2 \end{array}$$

[1]

Candidate Name | Centre Number | Candidate Number

(d) **(i)** Draw a circuit diagram of the function

$$F = A + \overline{A}.B$$

[3]

(ii) For the function in **d(i)**, find the output of F when A = 0 and B = 1.

[2]

Candidate Name	Centre Number	Candidate Number

12 (a) Define the terms below.

(i) html

_____

_____ [1]

(ii) cookie

_____

_____ [1]

(b) State any **three** features found on a good website.

1 _____

2 _____

3 _____ [3]

Candidate Name	Centre Number	Candidate Number

BLANK PAGE