Candidate Name	Centre Number	Candidate Number

ZIMBABWE SCHOOL EXAMINATIONS COUNCIL

General Certificate of Education Ordinary Level

COMPUTER SCIENCE 4021/2

PAPER 2 Structured

NOVEMBER 2023 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 at 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 17 printed pages and 3 blank pages.

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Answer all questions.

1 (a) Explain any two characteristics of USB flash memory.

1. .....

.....

2. .....

[2]

.....

(b) Compare impact and non impact.

Impact	Non impact
1.	
2.	

[2]

(c) State any **one** output device.

[1]

.....

2 (a) Describe the term *tailor-made software* and give **one** example.

.....

.....

[2]

.....

(b) Explain any **three** benefits of using tailor-made software.

1. .....

.....

2. .....

.....

3. .....

[3]

.....

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3 (a) Most businesses have introduced electronic ways of doing business during the lockdown period.

Define the term *e-banking*

.....

.....

.....[2]

(b) Give any **two** benefits of e-banking to the customer.

1. .....

.....

2. .....

.....[2]

(c) Outline any **two** disadvantages of e-business to the employee.

1. .....

.....

2. .....

.....[2]

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4 Below are four components of an expert system.

Using arrows, link the four components to their correct definitions.

Provides reasoning mechanisms in a typical expert system	User Interface
A user is allowed to input a response from information presented to them	Rule Base
Made up of a series of selection statement (if the) called inference rules	inference engine
collection of fact used to solve problems in a expert term	knowledge base

[4]

5 (a) Convert the following decimal numbers to binary. Show all working.

(i) 84_{10}

Answer .....

[2]

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(ii) 109_{10}

Answer ..... [2]

(b) Convert the following decimal numbers to denary. Show working

(i) $D4_{16}$

Answer ..... [2]

(ii) $16F_{16}$

Answer ..... [2]

(c) With the aid of a diagram, illustrate a NOT gate and the truth table.

[2]

6 (a) State and explain any two data validation techniques.

1.

2

[4]

(b) List any three ways of protecting data from hackers.

1.

2.

3.

[3]

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(c) Outline any **three** measures an organisation can use to recover lost data.

1. .....

.....

2. .....

.....

3. .....

.....

[3]

7 (a) Differentiate half duplex transmission mode from full duplex transmission mode. Give examples of where each transmission mode is used.

	half duplex	**full duplex**
difference		
example		

[2]

(b) Explain any **two** characteristics of each of the following data transmission media.

(i) coaxial cable

.....

.....

.....

[2]

(ii) fibre optic cable

.....

.....

[2]

.....

(c) Outline any three services that can be provided by the transport layer of the OSI model.

1. .....

2. .....

3. [3]

.....

(d) Explain any two advantages of using wireless fidelity (WIFI).

1. .....

.....

2. .....

[2]

.....

(e) Describe the following devices required to set up a computer network.

Router

.....

.....

.....

Network Interface Card

.....

[2]

.....

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(f) Explain any **two** services offered by Internet Service Providers (ISP).

1 .....

.....

.....

2 .....

[2]

8 (a) Explain the purpose of the following feasibility study techniques.

economic

.....

.....

.....

operational

.....

.....

[2]

(b) Identify any **two** types of testing carried out at development stage.

1. .....

.....

.....

2. .....

.....

[2]

(c) Write any two differences between technical and user documentation.

technical documentation	user documentation

[2]

(d) State any two disadvantages of classroom training.

1. .....

.....

.....

2. .....

.....

.....

[2]

(e) Determine two factors to be considered when training users.

1. .....

.....

.....

2. .....

.....

.....

[2]

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9 (a) Draw and label any **two** symbols used when drawing a program flowchart.

[4]

(b) Give any two purposes of algorithms

1. .....

.....

2. .....

.....

[2]

(c) (i) Describe the selection construct.

.....

.....

.....

[2]

(ii) Draw a diagram that shows a sequence construct.

[2]

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10 **(a)** Differentiate the terms

(i) variable and constant,

variable	constant

[2]

(ii) local variable and global variable.

local variable	global variable

[2]

(b) Explain the meaning of the statement *"initializing a variable"*.

.....

.....

.....

[1]

11 (a) Define the term *a foreign key*.

.....

.....

.....

[2]

(b) Describe any two database objects.

1 .....

.....

2 .....

.....

[4]

(c) The following table shows part of data stored in the Players Table of a certain football team.

PlayerID	Player_Name	Position	Date_Joined_Team
DFC001	James	defender	20-01-19
DFC002	Peter	striker	13-08-20
DFC003	Andrew	goalkeeper	01-04-20
DFC004	Trevor	defender	16-06-19
DFC007	Steve	midfielder	18-12-20

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(i) The striker has cancelled his contract and needs to be removed from the database.

Produce SQL statement to delete the striker from the above table.

Hint: On criteria, use the position field.

[3]

(ii) State the number of attributes shown in the Players table.

.....

[1]

12 (a) The following are elements of a web page

- English
- Computer Science

Write the pair of HTML tags between <body> and </body> which would display the web elements as given above

```
<!DOCTYPE html>
<head>
<title> Our Curriculum</title>
</head>
<body>

</body>
</html>
```

[3]

(b) State any two HTML formatting tags

1 .....

2 ..... [2]

13 (a) Explain the given intellectual property rights.

(i) Patents

.....

.....

.....

[2]

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(ii) Trademarks

.....

.....

.....

[2]

(b) Suggest any **one** ideal condition that influence business location.

.....

.....

.....

[1]

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