EXAMINATIONS COUNCIL OF ZAMBIA

Examination for School Certificate Ordinary Level

Computer Studies 7010/1

Paper 1

Wednesday **9 NOVEMBER 2016**

Candidates answer on the question paper
No additional materials are required

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. There are 13 questions in this paper, 12 in Section A and 1 in Section B. Answer all Questions.

Write your answers in the spaces on the question paper.

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 70.

Cell phones are not allowed in the Examination Room.

For Examiner's Use

Section A

1 **(a)** Explain the meaning of the term data.

.....

..... [1]

(b) **(i)** State **two** input devices which automatically capture data.

Device 1: ..... [1]

Device 2: ..... [1]

(ii) Give an application which uses device 1 and another which uses device 2 in **(b) (i)** above.

Device 1: Application: ..... [1]

Device 2: Application: ..... [1]

(iii) Give **one** advantage of using device 1 in the application you have named.

.....

..... [1]

2 **(a)** What is the number 8 in binary?

.....

..... [1]

(b) Change the hexadecimal 4AFB to binary equivalent. Show your working.

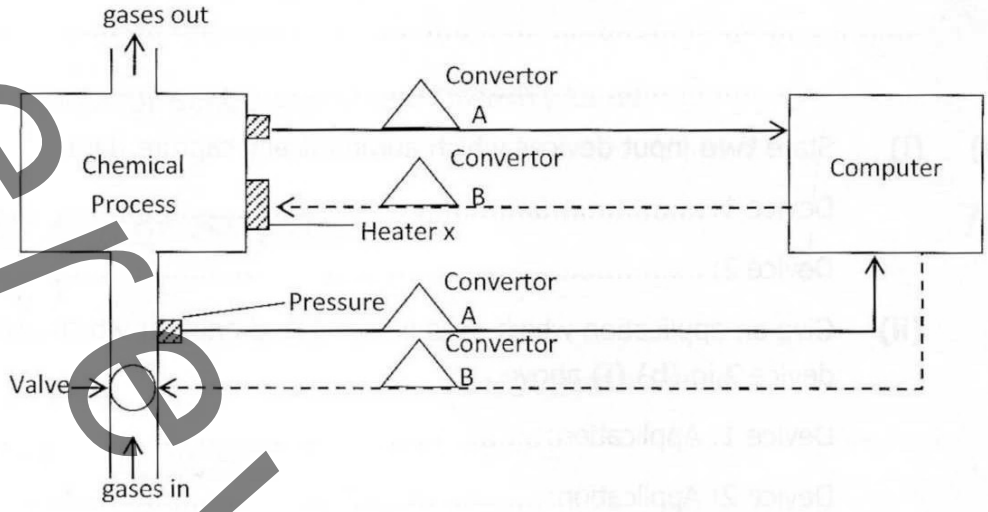
.....

.....

.....

..... [2]

3 A computer system is using sensors to monitor and control a chemical process as shown in the diagram below.



(a) Name **one** sensor on heater **X**.

..... [1]

(b) What is the difference in the function of converter **A** and Convertor **B**?

.....

..... [2]

(c) Describe the processing that takes place in the computer for this control system.

.....

.....

..... [2]

4 A digital alarm clock is controlled by a microprocessor. It uses the 24 hour clock system, (ie 6pm is 18:00). Each digit in a typical display is represented by a 4 digit binary code.

For example

0	8	:	3	5

Is represented by

8	4	2	1	
0	0	0	0	1st digit (0)
1	0	0	0	2nd digit (8)
0	0	1	1	3rd digit (3)
0	1	0	1	4th digit (5)

(a) What time is shown on the clock displayed, if the 4 – digit binary codes are:

8	4	2	1
0	0	0	1
0	1	1	1
0	0	1	1
0	0	0	0

		:		

[1]

(b) What would be stored in the 4-digit binary codes if the clock display time was

2	2	:	5	9

?

8	4	2	1	
				1st digit
				2nd digit
				3rd digit
				4th digit

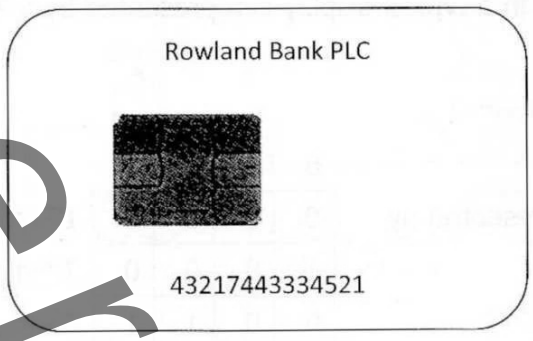
[2]

(c) The clock alarm has been set at 08:00. Describe the actions of the microprocessor which enable the alarm to sound at 08:00 hours.

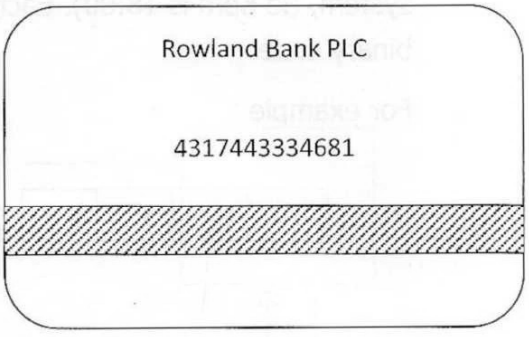
.....

.....

5 The figures below show two types of cards used by customers of Rowland bank.



Card A



Card B

(a) Identify Card **A** and Card **B**.

Card **A**: ..... [1]

Card **B:** ..... [1]

(b) Give **one** example of information stored on both cards.

.....

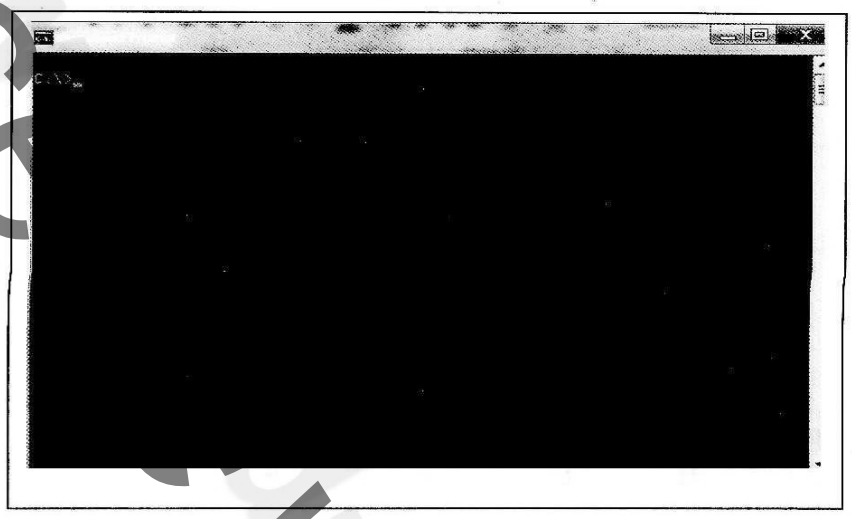
..... [1]

(c) Give **two** advantages of card **A** over Card **B**.

Advantage 1: ..... [1]

Advantage 2: ..... [1]

6 The screenshot below shows a user interface of an operating system. Use it to answer the questions that follow.



(a) Name this type of operating system interface.

..... [1]

(b) Give **two** functions of this operating system.

Function **1:** .....

..... [1]

Function **2:** .....

..... [1]

(c) State **one** advantage of this type of operating system.

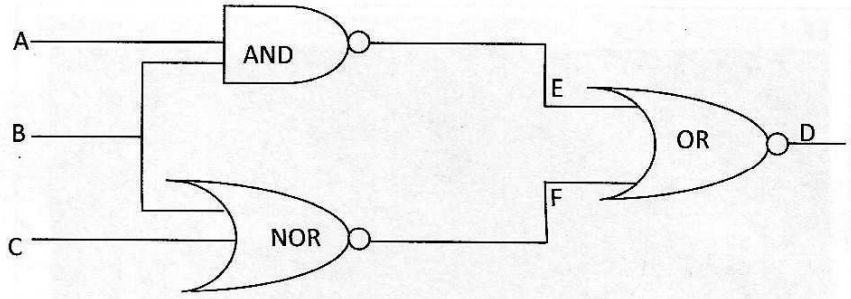
.....

..... [1]

(d) Smart phones use an operating system that responds to touching, tapping or pinching. Name the input device suitable for such a system.

..... [1]

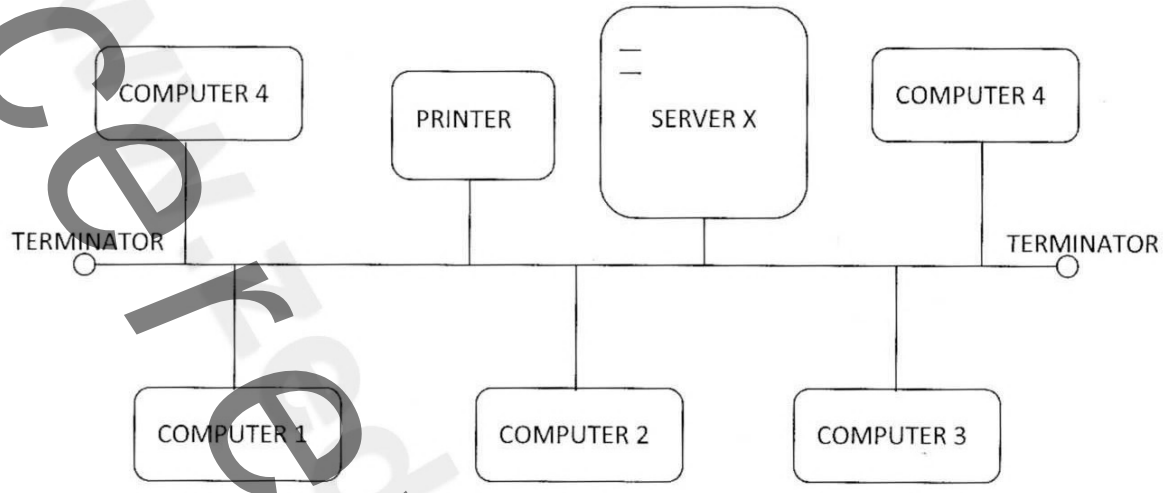
7 Complete the truth table for the following logic circuit.



	INPUT A	INPUT B	INPUT C	OUTPUT E	OUTPUT F	OUTPUT D
0	0	0	0	0	1	
1	0	0	1	0	0	0
2	0	1	0	0		0
3	0	1	1	0	0	0
4	1	0	0	0	1	1
5	1	0	1	0	0	0
6	1	1	0	1	0	
7	1	1	1		0	1

[4]

8 The diagram below shows a local Area Network (LAN). Use it to answer questions that follow.



(a) Give **one** advantage of this type of topology?

..... [1]

(b) Explain **one** function of the server **X**.

.....

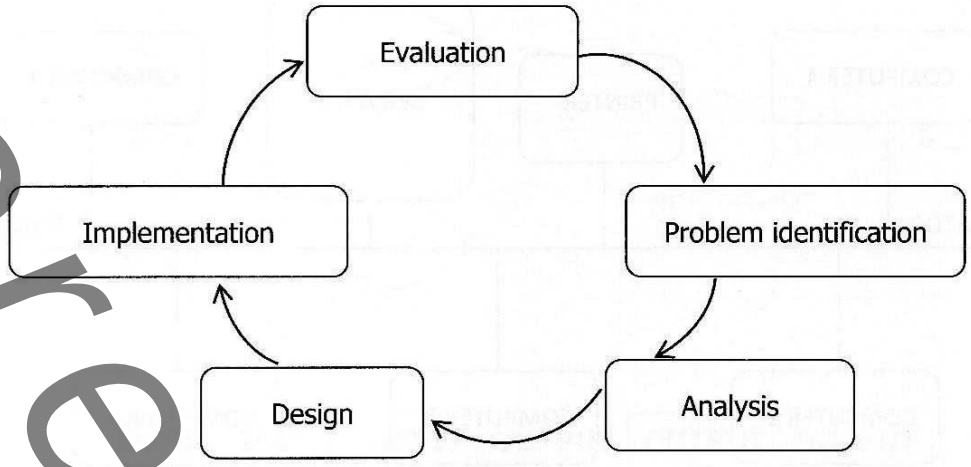
..... [1]

(c) State **one** difference between an intranet and an extranet.

.....

..... [1]

9 The diagram shows the stages of the system development life cycle used when developing a new system.



(a) **(i)** At what stage should the Action plan be worked out?

..... [1]

(ii) Give **one** reason why implementation and documentation happen at the same time.

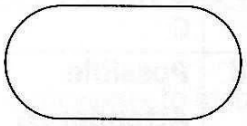
..... [1]

(b) Complete the table below which shows different methods of implementation.

Method	**Cost**	**Advantage**
Parallel	High	When the trial system fails, the old one can be used.
Pilot	Medium	If new system fails only one department is affected.
Phased	Medium	If the trial sub-system fails the rest of the system will still run
Direct		

[2]

10 Study the flowchart below and answer the question that follows.



Error! Not a valid link.

Rewrite the algorithm using pseudocode.

START

.....

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.....

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.....

.....

[3]

11 The figure below shows part of a spreadsheet used to keep attendance records at Sukulu Secondary School.

	A	B	C	D	E
1	**Name**	**Learner Id**	**Possible Attendance**	**Actual Attendance**	**Percentage of Attendance**
2					
3	Mweemba Chanda	G12R164576	66	60	
4	Clive Patel	G12R164579	66	55	

(a) Describe **one** method that can be used by grade teachers to verify learner ID.

.....

..... [1]

(b) Write the formula that would be used in Cell E3 to calculate the percentage of attendance.

..... [1]

12 A database below was created to show statistics for some provinces in a country.

REF	NAME OF PROVINCE	POPULATION IN MILLIONS	NUMBER OF HOUSES IN MILLIONS
MT	MOUNTAIN	0.4	0.2
FS	FOREST	0.8	0.35
VY	VALLEY	4.8	1.5
ML	MINERAL	2.9	1.1
WR	WATER	1.2	0.81
WD	WOOD	5.1	3.1

(a) Explain what Primary key means.

..... [1]

(b) How many records are shown in the database above?

..... [1]

(c) The following search condition was entered:
population (million) <1.3) AND number of house > 0.3 million.
Using REF only, write down the records found.

.....

..... [2]

(d) Name **one** validation method for number houses held.

..... [1]

Section B

13 Read the following scenario carefully and use it to answer the questions that follow.

The owner of a small general shop wants to install a computerised stock control system. All stock control has been done manually until now. The owner is the only person who works in the shop.

(a) Give **one** example of a problem statement and an objective statement from this kind of a system.

Problem: .....

..... [1]

Objective: .....

..... [1]

(b) During the analysis stage, the systems Analyst will gather information to study the current system. Describe **two** fact finding methods the analyst would use to study this situation and give reasons for your choice.

Method 1: .....

..... [2]

Method 2: .....

..... [2]

(c) **(i)** State **three** questions that the analyst would pose to the shop owner during the feasibility study and the responses.

.....

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.....

..... [6]

(ii) State **two** effects of the proposed system on the user.

.....

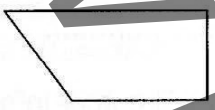
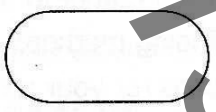
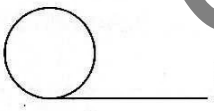
.....

.....

.....

..... [2]

(d) In the analysis stage, the analyst will make use of the following system flow chart symbols and statements.

Symbols		**Statements**	
	Manual input	1	Owner enters the numbers of the current stock.
	Manual operation	2	Store of current stock balances
	Start/Stop	3	Calculation of stock balances using calculators and check if re-order levels have been reached
	Storage		

Use the symbols and the statements provided to outline the data flow in the current system.

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..... [6]