



ZIMBABWE SCHOOL EXAMINATIONS COUNCIL
General Certificate of Education Advanced Level

COMPUTING
PAPER 2

9195/2

NOVEMBER 2008 SESSION

3 hours

Additional materials:
Answer paper

TIME 3 hours

INSTRUCTIONS TO CANDIDATES

Write your name, Centre number and candidate number in the spaces provided on the answer paper/answer booklet.

Answer **all** questions.

Write your answers on the separate answer paper provided.

If you use more than one sheet of paper, fasten the sheets together.

INFORMATION FOR CANDIDATES

The number of marks is given in brackets [] at the end of each question or part question.

You are reminded of the need for good English and clear presentation in your answers.

This question paper consists of 4 printed pages.

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[Turn over

- 1 (a) Describe top-down design. [2]
(b) Give **two** benefits of top-down design. [2]
- 2 In the near future we might be talking of a cashless society.
(a) Give **three** facilities that can be used by banks and other financial institutions to support the idea of a cashless society. [3]
(b) Give **two** reasons why some people feel that it may never be possible to achieve a cashless society. [2]
- 3 (a) Describe **one** major advantage that online processing has over batch processing. [1]
(b) Batch processing is still preferable for some applications in business. Using a suitable example, discuss why. [4]
- 4 Describe **three** different validation checks that could be used on data entering a system. [6]

- (a) Explain the following terms as they relate to file organisations.
- (i) full indexes [2]
 - (ii) overflow areas [2]
- (b) A company has got branches all over the country and each branch has a number of departments. Records of all employees of the company are stored in a centralised system in a multi-level indexes file.
- (i) State **two** reasons for using multi-level indexes in the case above. [2]
 - (ii) Illustrate using a diagram, the multi-level index organisation for the case above. [5]

- 5 (a) Many supermarkets now use computerised systems to add up sales, produce till receipts and check stock levels.
- State **two** effects that such systems have on.
- (i) customers, ✓
 - (ii) management, ✓
 - (iii) employees. [6]
- (b) Information Technology (IT) systems sometimes accept spoken input and use a voice synthesizer to communicate to users. Describe situations where voice synthesis and voice recognition are an essential part of the IT system being used. [6]

- 6 (a) State **three** main functions of an operating system. [3]
- (b) In distributed systems, errors in communication are likely to occur. Explain **three** possible errors which might occur. [6]
- (c) Define the following terms as they apply in operating systems:
- (i) deadlock
 - (ii) paging
 - (iii) virtual storage
 - (iv) spooling [4]

- 7 (a) Most companies in Zimbabwe with branches throughout the country tend to prefer **distributed processing** over **centralised processing**. [2]
- (i) Explain the terms in bold. [2]
- (ii) Give **four** reasons for the preference given to distributed processing over centralised processing. [4]
- (b) For each of the following systems, determine the most appropriate processing method giving a reason for your choice.
- (i) an electricity company sending out bills [2]
- (ii) an airline reservation system [2]
- (iii) a cash-point machine [2]
- 8 (a) The stage of systems analysis in system development requires that affected people be consulted. Describe the **two** groups of people involved in any system development project. [4]
- (b) Explain any **three** factors that should be considered when deciding on the appropriateness of a computer-based system. [6]
- (c) A manufacturing company would like to implement a payroll system. It has the following design options:
- Option 1 Design a distributed system where each department can process its payroll using a submodule in the software, assuming that employee details are centrally available.
- Option 2 Design a single-user system where only one person in the accounting department is responsible for running the payroll.
- State **two** major differences between the two options above? [4]

- (a) Describe any **four** advantages of using high-level languages. [4]
- (b) Give **one** advantage and **one** disadvantage of using assembly language for programming. [2]
- (c) An assembler uses the following programming codes:

ORG x: x is the location of the start of our program.

ADD a, b	:	a = a + b
HLT	:	halt or stop
DIV a, b	:	a = a/b
SUB a, b	:	a = a - b
MUL a, b	:	a = a × b
MOV a, b	:	a = b and b = b
SWI get Int	:	accept input of an integer and store it in v0
SWI put Int	:	print value of v0 to the screen.

Study the following assembler program.

```

ORG 0;
SWI get Int;
MOV v1, v0;
SWI get Int;
MOV v2, v0;
MOV v3, v1;
MUL v3, v1;
MOV v4, v2;
MUL v4, v2;
ADD v3, v4;
MOV v0, v3;

```

- (i) Describe what the above program does. [4]
- (ii) Rewrite the program using pseudocode. [3]
- (iii) State a type of high-level language suitable for the program, giving a reason for your choice. [2]