

Angka Giliran:..... No. Tempat Duduk:.....

UNIVERSITI SAINS MALAYSIA

Peperiksaan Semester Pertama  
Sidang 1987/88

LKI 260 - Bahasa Inggeris Teknikal II

Tarikh: 23 Oktober 1987

Masa: 9.00 pagi - 12.00 tengahari  
(3 jam)

INSTRUCTIONS:

1. Before you start, please note that this paper comprises 16 printed pages and an Appendix of 5 printed pages.
2. Answer ALL questions.
3. Write ALL answers IN THIS BOOKLET.

UNTUK KEGUNAAN PEMERIKSA SAHAJA		
SOALAN	MARKAH PENUH	MARKAH DIPEROLEHI
I	23	
II	25	
III	26	
IV	26	
JUMLAH	100	

...2/-

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QUESTION I. (23 marks)

This question contains 4 parts: A, B, C, and D.  
Read TEXT A in the Appendix and answer the questions which follow.

A. Name eight industrial robotics applications:

- |          |          |
|----------|----------|
| 1. _____ | 5. _____ |
| 2. _____ | 6. _____ |
| 3. _____ | 7. _____ |
| 4. _____ | 8. _____ |

(4 marks)

B. Explain the meanings of the following words in your own words.

- |                 |         |       |
|-----------------|---------|-------|
| A. manipulate   | (line ) | _____ |
| B. consistency  | (line ) | _____ |
| C. routine      | (line ) | _____ |
| D. minuscule    | (line ) | _____ |
| E. accelerating | (line ) | _____ |

(5 marks)

C. Indicate whether the following statements are TRUE (T) or FALSE (F). If the Text does not provide enough information for you to make a decision, tick ( ✓ ) INSUFFICIENT INFORMATION (I).

- |    |  |
|----|--|
| 1. | The author is against automation because it will lead to widespread unemployment.          |
| 2. | It is highly unlikely that the population of robots will ever exceed that of human beings. |

T	F	I

...3/-

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3. The advances in the manufacture of more sophisticated robots will most probably be hampered because of some social reasons.
4. Robots will not be able to function effectively without the help of a computer.
5. Robot labour is more attractive because it reduces labour costs as well as eliminates the need to have human beings do hazardous and dirty jobs.
6. Robots 'see' and 'touch' with sensors and effectors and therefore are incapable of recognising errors.

T	F	I

(9 marks)

- D. Refer to TEXT A and select the appropriate headings for each of the 5 paragraphs. Choose the correct headings for the paragraphs by writing the number of the paragraphs in the boxes provided. 3 of the headings will not be used.

HEADINGS	NO. OF PARAGRAPH
1. The structure of robots	
2. The historical development of robots	
3. The definition of robots	
4. The potential of future robotics	
5. The causes for the current popularity of robots	
6. The impact of robots on employment	
7. The social implication of robots	
8. The power of robots	

(5 marks)

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**QUESTION II.** (25 marks)

This question contains 4 parts (A, B, C and D). Read **TEXT B** in the Appendix and then answer the questions that follow.

A. Refer to TEXT B and state what the following words refer to.

1. "it" (line 6 ) \_\_\_\_\_
2. "This" (line 25) \_\_\_\_\_
3. "which" (line 35) \_\_\_\_\_
4. "it" (line 39) \_\_\_\_\_
5. "its" (line 44) \_\_\_\_\_
6. "his" (line 47) \_\_\_\_\_

(3 marks)

B. Complete the diagram below with the information from TEXT B.

	USERS	FUNCTION	OUTLETS	BACKGROUND KNOWLEDGE OF DEALERS
<b>FIRST MICROS</b>				<b>ELECTRONICS</b>
<b>BUSINESS MICROS</b>	<b>COMPANIES</b>		1.  2.	<b>AND</b>

(8 marks)

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C. Read TEXT B carefully and answer the following questions.

1. List the five elements that make up a micro system.

- |            |           |
|------------|-----------|
| i. _____   | ii. _____ |
| iii. _____ | iv. _____ |
| v. _____   |           |

2. What problems may a user company face when it has purchased a micro system from a number of different sources?

- i. The problem of availability of support for the system.
- ii. The difficulty in determining the sources for an error in the system.
- iii. The cost of software.
- iv. The maintenance of the system.

- |                          |                   |
|--------------------------|-------------------|
| <input type="checkbox"/> | A. All the above. |
| <input type="checkbox"/> | B. iii & iv.      |
| <input type="checkbox"/> | C. ii & iii.      |
| <input type="checkbox"/> | D. i, ii & iv.    |

3. The big computer companies' attempt to provide a one source solution has not been successful because

- |                          |   |
|--------------------------|---|
| <input type="checkbox"/> | A. there is a gap between the support available to business and professional users. |
| <input type="checkbox"/> | B. it is challenged by a large number of small specialist firms.                    |
| <input type="checkbox"/> | C. of the lack of professional programmers.   |
| <input type="checkbox"/> | D. they do not provide training and support to their users.                         |

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4. One may wish to write his or her own programmes when
- i. the cost of software is high.
  - ii. the cheap packages are unsuitable.
  - iii. custom-designed systems are not available.
  - iv. there is a wide choice of softwares.

- ☐ A. i, ii & iii.
- ☐ B. ii & iii.
- ☐ C. i & ii.
- ☐ D. All of the above.

5. A good dealer nowadays is someone who must be
- i. a good business man.
  - ii. an electronic expert.
  - iii. a person with an understanding of professional applications.
  - iv. a rich man.

- ☐ A. i & ii.
- ☐ B. i & iii.
- ☐ C. i, ii & iii.
- ☐ D. All of the above.

6. The main difference between the micro-market and the mainframe market is that

- ☐ A. the former enjoys the advantages of competition.
- ☐ B. the former produces better quality softwares.
- ☐ C. the latter provides a wider range of softwares.
- ☐ D. the latter receives better support and maintenance from the suppliers.

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7. In what way has the micro-market been affected by the arrival of the big computer companies?

- ☐ A. There is a wider gap in the support available to users.
- ☐ B. The micro-market may be forced to close down.
- ☐ C. The micro-market no longer enjoys a cheap and a wide choice of packages.
- ☐ D. The business is filled with small specialist firms which aim to supply a one source-solution to the systems.

(14 marks)

QUESTION III. (26 marks)

This question contains 4 parts: A, B, C and D.

A. Study the Table of Contents of a book on Geology in the Appendix. The questions which follow will help you gather important information about the book. Write your answers in the space provided. (12 marks)

1. Is this an elementary introduction for a general reader or a specialized one for a reader who needs additional information?

\_\_\_\_\_  
(1 mark)

2. Name 4 special features in this book.

- i. \_\_\_\_\_
- ii. \_\_\_\_\_
- iii. \_\_\_\_\_
- iv. \_\_\_\_\_

(2 marks)

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3. For each of the following topics, decide if this book will provide relevant information. Put a tick ☒ if yes, or a cross ☐ if no, in the box to the left. If you put a tick, state the chapter from which the information could be found.

☐

i. Identification of Minerals  
Chapter \_\_\_\_\_

☐

ii. The Solar System  
Chapter \_\_\_\_\_

☐

iii. Continental Drifts and Restructure  
Chapter \_\_\_\_\_

☐

iv. How to tap nature's energy resources for Industrial Development.  
Chapter \_\_\_\_\_

☐

v. The Geologic Work of Wind and Classification of Sand Dunes.  
Chapter \_\_\_\_\_

☐

vi. The Earth's Scenery and Geological Beauty.  
Chapter \_\_\_\_\_

☐

vii. Vegetation at the various latitudes.  
Chapter \_\_\_\_\_

☐

viii. The Earth's Composition of Minerals and Elements.  
Chapter \_\_\_\_\_

(8 marks)



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- B. The first and last paragraphs of 2 passages are given below. Read them rapidly and then tick ☒ what you think the whole passage was about. (5 marks)

i. First Passage:

First Paragraph

**C**hemistry is wheat growing, bread baking, food digesting, and human bodies living. Chemistry helps us raise more food and make the drugs that bring us longer, healthier lives. Chemistry is petroleum forming in the earth, gasoline burning in automobile engines, and smog forming in the atmosphere. Chemistry also is cleaning up the environment. Chemistry is turning natural resources into the many articles that enrich our lives and free us from drudgery. Chemistry also helps us conserve our dwindling resources of raw materials, especially resources of fuel. Chemistry is all these things and more. Yet, we are only describing chemistry in terms of examples. Let us turn from examples to generalizations that will help us broaden our definition of chemistry.

Last Paragraph

Essential principles of chemical science and their applications in your daily living are the themes of this book. We cannot cover all of chemistry. Probably many things you are curious about will be omitted. We hope you will search for answers elsewhere. The information and, most of all, the *ideas* you find in these pages should give you a good start toward both understanding what you encounter and prompting your curiosity.

Many articles you read in newspapers and magazines call attention to problems in an age where science and technology have such a great influence on our way of life. Some articles are dire predictions; others are complacently optimistic. Many urge the establishment of long-term policies. We hope that, after reading this book, you can evaluate better what you hear and read in the news and elsewhere. You cannot escape having to make up your mind. We hope what you learn from these pages can be a help!

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The first passage discusses

- ☐ wheat growing on a commercial basis.
- ☐ chemistry with a view of its daily applications.
- ☐ every possible development in science and technology.
- ☐ conservation of raw materials.
- ☐ Environmental Chemistry.

ii. Second Passage:

First Paragraph

This booklet sets out to explain briefly the principles on which the electron microscope works, and to describe some of the biological discoveries which have been made with it.

Last Paragraph

The electron microscope is one of the most recent stages in this development. It renders open to direct inspection a level of structure finer than any accessible before, and, just as did the light microscope, it reveals a new world, many of the features of which were previously unsuspected. As a result of the new observations which it has made possible, our understanding of the organization of plant and animal tissues has been enormously extended, and many of our ideas about the way cells are constructed and the way they function have been radically changed. The electron microscope has also added greatly to our knowledge of the structure and reproduction of viruses.

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The second passage discusses

- ☐ fundamental theories in biological discoveries.
- ☐ development in plant and animal tissues because of the electron microscope.
- ☐ how to use and care for an electron microscope.
- ☐ the working principles of an electron microscope and its biological discoveries.
- ☐ the principles in the organization of plant and animal tissues.

C. Read the short text below and answer the questions that follow.

The relief features of the earth are summarized in Figure 1.1. This diagram shows that the very high and very low portions of the earth are very small in area, and two levels, the continents and the ocean basin floors, make up most of the surface. The reason for the two distinct levels was one of the major problems of geology. Note that the difference between the highest and the lowest points is about 19.3 km (12 miles), and this is very small compared with the radius of the earth ( $19.3/6364$  [ $12/3957$ ] = 0.3%), so that the earth is smoother than a billiard ball. This comparison shows that the features we observe on the surface are very slight compared with the earth as a whole.

Certainly the differences between ocean and continent are the most pronounced contrast on the earth's surface. One important contrast is in rock type—the ocean basins are composed mainly of basalt; the continents, of igneous and metamorphic rocks of granitic composition. To understand how these compositional differences might account for the two main levels in the elevation diagram 1.1, we must turn to a different type of study.

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- a. Write a statement to show the difference between oceans and continents using the phrase 'can be distinguished from'.

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- b. Write a statement to show the comparison between the earth and a billiard ball using the phrase 'is similar to'.

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(4 marks)

- D. Read the short text below and complete the diagram on the next page.

The submarine mountains are *basalt volcanoes*. Some, such as the Hawaiian Islands, extend above sea level. In some areas these mountains are flat topped. These flat-tops are now at depths up to about a mile below the surface of the ocean. They are especially interesting because their flat tops were probably produced by wave erosion at sea level. Several lines of evidence point to this conclusion. Wave erosion is one of the few ways that such surfaces can be produced, although, under some conditions, small submarine volcanoes may form with initial flat tops. Wave-cut benches are being formed now on the present islands, and if this process continues, such islands will become flat topped. Lowering of sea level or rising in elevation of an island can preserve such benches, and this, too, can be seen on present-day islands and coastlines. Similar benches are revealed in profiles of some of the flat-topped seamounts

If the island sinks, the corals will build up the reef so that they remain near the surface where their food supply is. This process may continue until the island is completely submerged, perhaps quite deeply, and only a coral reef remains. At Eniwetok the coral is 1370 m (4500 feet) deep. Thus, the flat-topped seamounts tell a story of volcanic activity, wave erosion, and rapid subsidence; if they had subsided slowly, coral would have been able to build up and form an atoll.

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C. Which of these topics would you expect to be discussed in this book? Tick ☒ the correct answers. Marks will be deducted for wrong answers.

- |  |                          |
|--|--------------------------|
| 1. Details of the operation of computers.                                | <input type="checkbox"/> |
| 2. How to design programs properly.                                      | <input type="checkbox"/> |
| 3. The functions of disk drives, line printers and visual display units. | <input type="checkbox"/> |
| 4. Basic binary arithmetic.  | <input type="checkbox"/> |
| 5. The impact of computers on manufacturing industries.                  | <input type="checkbox"/> |
| 6. An introduction to basic programming language.                        | <input type="checkbox"/> |
| 7. The historical development of computers.                              | <input type="checkbox"/> |
| 8. The installation and maintenance of computers.                        | <input type="checkbox"/> |

( 4 marks)

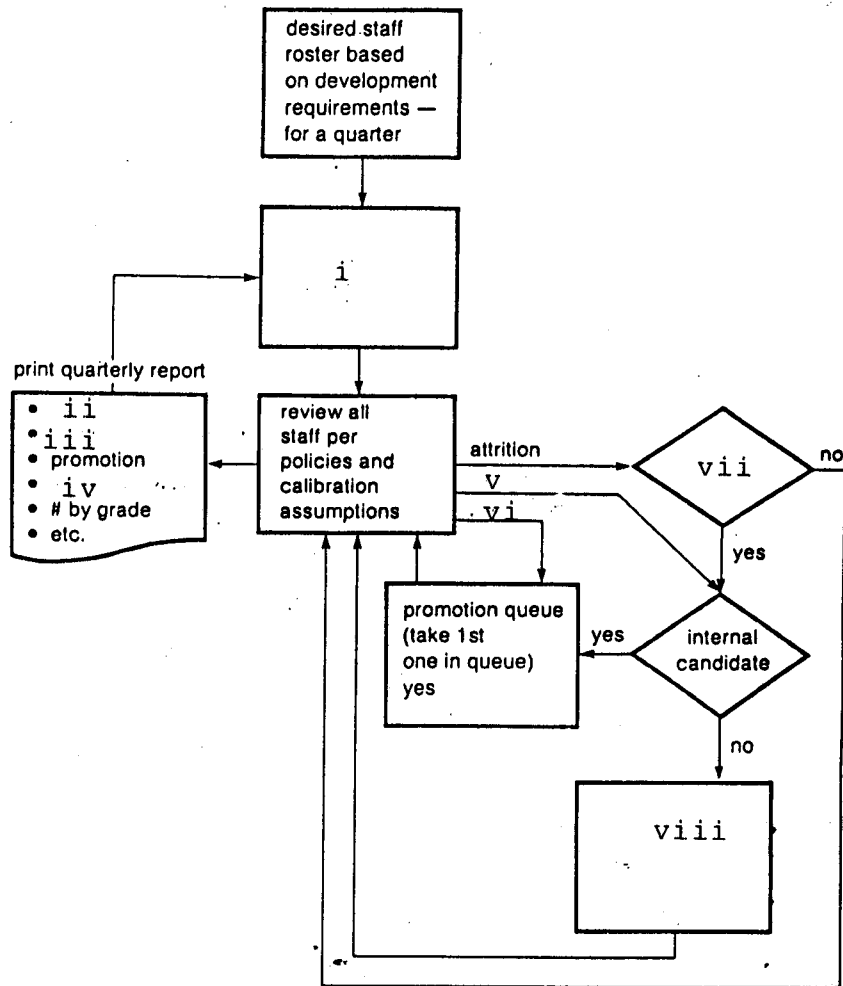
D. Study the text below and fill in the blanks in the flowchart on the next page.

This is a discrete model that evaluates the desired quarter-end staff roster. During each quarterly time increment, the management has to determine if there has been any attrition and establish vacancies if so. It also determines, if any employee has become promotable. The employee must have shown satisfying performance. If so, the individual employee enters the promotion queue. If there is a vacancy, promotable internal candidates are given preference. If no internal candidate is available, the simulation program hires from outside. After all events and analyses are completed for that quarter, a quarterly report is printed. It will show such factors as salaries of each assumed employee, number of employees hired and attrited and so on. The management can analyse this data and review its policies and assumptions.

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**Figure 3.** General flow chart of a simulation of an MIS department's staff changes over several years.



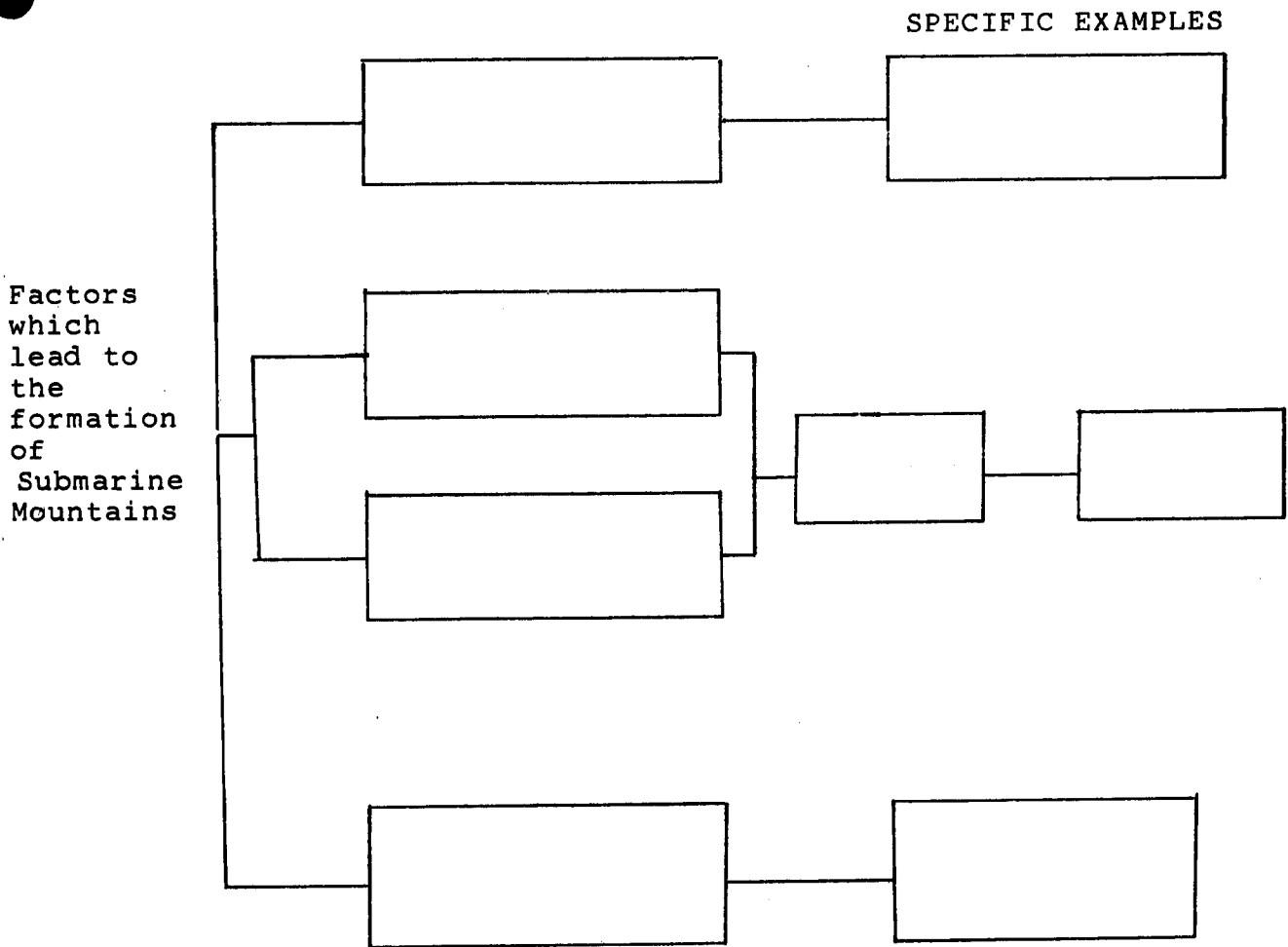
Fill in the blanks below:

- i. \_\_\_\_\_
- ii. \_\_\_\_\_
- iii. \_\_\_\_\_
- iv. \_\_\_\_\_
- v. \_\_\_\_\_
- vi. \_\_\_\_\_
- vii. \_\_\_\_\_
- viii. \_\_\_\_\_

(8 marks)

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( 6 marks)

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QUESTION IV. (26 marks)

This question contains 4 parts: A, B, C and D.  
Read the Preface in the Appendix then answer the questions which follow.

A. A possible title for this book would be:

\_\_\_\_\_

(2 marks)

B. Fill in the Table below by using information from the Preface.

GENERAL PURPOSE	
POSSIBLE READERS	
CONTENTS	
PREVIOUS KNOWLEDGE REQUIRED	
ADVICE TO READERS	



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APPENDIX

This Appendix contains:

TEXT A, TEXT B, a Table of Contents and a PREFACE

which are to be used to answer:

QUESTION I	:	Parts A, B, C and D
QUESTION II	:	Parts A, B and C
QUESTION III	:	Part A
QUESTION IV	:	Parts A, B and C

YOU MUST HAND IN THIS APPENDIX TOGETHER WITH YOUR ANSWER BOOKLET.

...2/-

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TEXT A.

Read the text below carefully and answer Question I  
(Parts A, B, C and D).

I Robot comes from a Czech word meaning "work." Science fiction definitions aside, robots are basically automatic devices that perform functions ordinarily performed by human beings, or operate with what appears to be almost human intelligence. Robotics is the application of computers to robots to accomplish these things.

II Robots lift, rotate, manipulate, and put things down. They weld, load and unload, assemble, and inspect. They operate in places where humans don't want to, or can't, go. They see and touch. And they need computers to do all of these. Computers supply robots sensors and effectors ("hands") with a control mechanism. In fact, the control mechanism of a robot is the computer.

III There are more than 35,000 robots "working" in the world today in manufacturing and related activities (the so-called personal robots are just expensive toys at this point). This figure is expected to grow 25 percent to 30 percent per year for the immediate future. One reason for their current popularity is that robots cost less than people do — for example, \$5-\$6 per hour for a robot vs. \$20 and more for an automobile industry worker in the United States. Other reasons include the robot's ability to work virtually 24 hours a day, and its "willingness" to work in hazardous, unpleasant, or boring jobs. Finally, robots perform repetitive work with great consistency and high quality.

IV A popular belief is that robotics will lead to widescale worker replacement and unemployment. This is highly unlikely. The use of computers in the office over the past three decades has not led to widespread unemployment. The number of office workers has increased even though worker productivity has increased. More work is being done. Robots, for some time to come, will be less flexible than humans and therefore limited to fairly routing jobs. The number of robots that exist compared to the number of jobs worldwide is minuscule, and will remain so; in fact, jobs may actually be created in fields relating to robotics. In any case, a number of countries are going to go "all out" in increasing their use of robots, and will gladly compete with those who are holding back for social reasons.

V Future robotics will feature lighter, more "competent" (humanlike), more mobile "limbs" with improved sensors and controls. All the technologies needed to support these improvements are in place. And pushed along by worldwide initiatives in artificial intelligence and other "tomorrowland" concepts, these advances should occur at an accelerating pace.

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TEXT B.

Read the text below carefully and answer Question II  
(Parts A, B, C)

The first micros were hobby orientated and generally sold through small shops to amateur enthusiasts. For some time, very little applications software was available, since the machines were programmed by their users - often for the pleasure of it. The micro's impact upon business had to wait until competent software houses and manufacturers began to write suitable packages.

With the growth of the micro business and the advent of quality software, a new breed of dealer emerged. The earliest type of dealer was essentially an electronics expert. The second type of dealer had to have an understanding of the computer, not necessarily as deep as the first, but also an understanding of business or professional applications.

Differences persisted, however, between the micro market, and the mini/mainframe market, particularly in the variety of sources from which a computer system can be built. In the case of a micro, the elements of a system can be obtained from an extremely wide range of suppliers. Hardware, software, training, maintenance and consumables may all come from different sources. This has brought the advantages of competition and a wide choice of packages. It has also brought disadvantages in the sense of gaps in the support available to the business and professional user. In the case of an error in the system, it is not always easy to establish whether the supplier of the computer, or that of the disks, or the software house which provided the package, is at fault.

The market has lately been changing again with the arrival of some of the big names in computing, such as Rank Xerox, IBM and DEC, which aim to supply a one-source solution. But the business is heavily populated by small specialist firms which will produce a package, supply a range of hardware to support it, and install the system - with all training and support - at an inclusive price. Examples of such turnkey systems include packages for solicitors and insurance brokers. The system is not priced according to its individual components, but considered as a whole and offered as such.

When confronted by the choice of a package that is cheap but does not quite fit his requirements, and an expensive custom-designed system, the businessman may be tempted to learn BASIC, and to write his own software. Learning BASIC certainly gives confidence in the use of computers. It also allows the user to produce simple programs. But the production of simple programs and the writing of application software, the reliability of which may be vital to a business, are very different matters. The production of a business system is not something which should be lightly undertaken.

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TABLE OF CONTENT

Study the table of Content below and answer QUESTION III.

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Study the PREFACE below and answer QUESTION IV.

### P R E F A C E

This is a book about computers. It describes what it is that computers do, why they are required to do these things and how they fit into the world around them.

Most important of all, it describes the principles behind the use of computers, rather than the details of their operation. Thus, it does not teach you to write programs, but it does teach the good habits of designing them properly. It does not teach much about the workings of disk drives, line printers and visual display units – rather it teaches about *why* they are designed the way they are, and what jobs they do best.

The reader is expected to be familiar with binary arithmetic, which is used without formality throughout, although nothing more advanced than counting is required. It is also assumed that he or she is aware of computers and has some commonsense notion of the sort of work that they do. In some cases, it has been appropriate to refer to the BASIC programming language for illustration. It is never necessary to understand the details of BASIC in order to extract the most from this book.

This book will not do everything for you! There are two experiences in computing that we cannot provide in this book (or any other). For the fullest satisfaction, it will be necessary to do some practical computing and for this you will require a guide to a programming language available on a computer to which you have access, and a guide to the computer itself. Further, you will need to see computing in action, and for this it will be necessary to make visits to computer installations, computer users and other computer professionals.

Our thanks are in order to the many of our colleagues who have given advice and encouragement: we should like especially to thank Brian Jackson. The publishers' readers offered much advice that we have heeded and we wish to thank John Newton and Mike Johnston, even though they are anonymous. The publishers, in the guise of Elizabeth Johnston, Julia Denny and Andrew Nash, have been tirelessly optimistic throughout, and they too we thank. But our especial thanks have been reserved for Princess, our Labrador, for not eating the manuscript.

*Barbara and John Jaworski*  
1981

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