

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

UNIVERSITI SAINS MALAYSIA

Peperiksaan Semester Kedua
Sidang 1986 /87

LKI 460 - Bahasa Inggeris Teknikal IV

Tarikh: 2 April 1987

Masa: 9.00 pagi - 10.30 pagi

(1½ jam)

INSTRUCTIONS:

Before you begin this examination , please check that it contains 11 printed pages and an Appendix of 2 pages.

Answer ALL questions.

Write ALL answers in this examination booklet.

Hand in this booklet and the Appendix intact.

UNTUK KEGUNAAN PEJABAT SAHAJA		
SOALAN	MARKAH PENUH	MARKAH DIPEROLEHI
I	60	
II	40	
JUMLAH	100	

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This question paper consists of two parts. (Parts I & II)

PART 1 (60 marks)

READ THE PASSAGE IN APPENDIX A, AND ANSWER QUESTIONS
A, B, C, D AND E.

A. CHOOSE THE MOST APPROPRIATE ANSWER FOR EACH OF THE
FOLLOWING QUESTIONS. TICK (✓) THE CORRECT ANSWER.

(10 marks)

1. A visit to a modern engineering factory can be a fascinating experience because
 - A. metal components are cut and fashioned manually.
 - B. batches of components are transported by human workers.
 - C. various industrial operations are performed by computerised tools.
 - D. robots act on instructions passed down from blue-collar supervisors.

2. "Discrete items" refer to items which are manufactured
 - A. in bulk.
 - B. in a continuous process.
 - C. individually.
 - D. in powdered or liquid form.

3. The computerization process is especially useful in the manufacturing of discrete items because
 - i. it increases the output in a specified time.
 - ii. it can function without any human intervention.
 - iii. it reduces the cost of production.
 - iv. it produces goods of higher quality.

A. ALL the above	B. i, iii and iv
C. i, ii and iii	D. ii and iv

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4. "Hard automation" refers to
- A. the manufacturing of heavy machineries.
 - B. the automatic machinery which is manufactured in large batches.
 - C. the hardware which is programmed to perform a specific task.
 - D. the conventional method of producing goods.
5. It can be inferred from the passage that
- i. robots are relieving men of repetitive and unpleasant jobs.
 - ii. better employment for the displaced work force need to be found.
 - iii. automation should not be encouraged.
 - iv. automation is only useful for factories that produce identical products.
- A. ALL the above
 - B. i , ii and iv
 - C. ii , iii and iv
 - D. i , ii and iii

B. Decide if each of the following statements below is true (T) , or false (F). If the text does not provide sufficient information , choose (I) - insufficient information.

Tick (✓) the correct answer.

(14 marks)

	T	F	I
1. Hard automation is suitable for routine and repetitious jobs in the factories.			
2. The need to change the type of products to suit the demand of consumers has made hard automation more favourable than the conventional method of production.			
3. Computerised tools can function effectively without any human supervision.			

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- | | T | F | I |
|--|---|---|---|
| 4. In the near future , robots will replace the work force completely. | | | |
| 5. The computerisation process can spark off large scale alienation and loss of identity among the human population. | | | |
| 6. Robots can be programmed to undertake a huge range of handling jobs normally done by people. | | | |
| 7. Technical advances are gradually giving robots properties that actually increase their likeness to humans. | | | |

C. Connect the sentences below with a logical connector and state the logical relationship between them.

(6 marks)

i. Sentence A : Soft automation in manufacturing industries can turn out goods with great precision with a few human workers.

Sentence B : Minimal times are needed to change the system to make different types of goods.

Answer : _____

Logical relationship : _____

ii. Sentence A : Much of the manufacturing industry is not concerned with production of goods in large amounts.

Sentence B : It is concerned with small , broken-up runs which produce various types of goods to suit the needs of consumers.

Answer : _____

Logical relationship : _____

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iii. Sentence A : In the most up-to-date factories , areas of the plant that deal with different tasks are linked by data networks.

Sentence B : Computerised tools in all sections of the works received information from others so that all their activities are coordinated.

Answer : _____

Logical relationship : _____

D. Give examples of each of the logical relationships listed below. Underline the connector used. Identify the paragraph and the line /s from which you picked them.

(18 marks)

i. Contrast

a) Answer:

Paragraph _____ Line _____

b) Answer :

Paragraph _____ Line _____

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ii. Condition /consequence

a) Answer :

Paragraph _____ Line _____

b) Answer :

Paragraph _____ Line _____

(6 marks)

iii. Identify and write out the cause and effect relationship in the diagram below.

Cause	Effect
A	A
B	B
C	C
D	D

(12 marks)

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E. Complete the diagram below to show the characteristics of the 'hard' and 'soft' automation.

(12 marks)

HARD AUTOMATION	SOFT AUTOMATION
a.	a.
b.	b.
c.	c.

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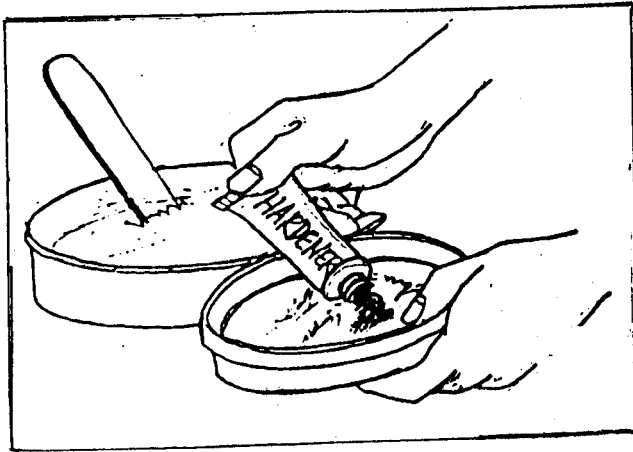
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PART II: (40 marks)

REPORT WRITING:

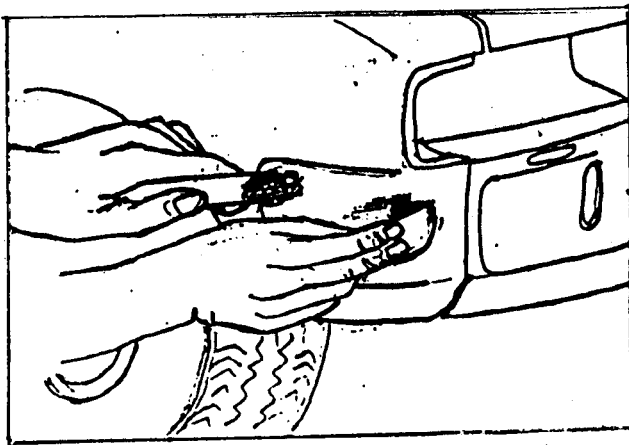
Task : Write a report on the process of filling re-spraying which you have undertaken on your car using the diagrams and the information given below.

FIGURE 1:



Mix the body filler on a clean piece of card or a dish - use the hardener sparingly otherwise the filler will set rapidly. Many types of body filler are available, but generally speaking those propriety kits which contain a tin of filler paste and a tube of resin hardener are best for this type of repair.

FIGURE 2:

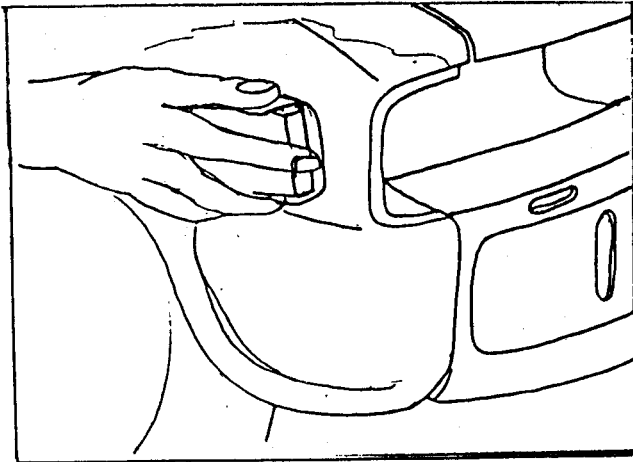


Filler should be applied with a flexible applicator as shown. A wide, plastic or nylon applicator will be found invaluable for imparting a smooth and well contoured finish to the surface of the filler. Apply thin layers of filler at 20 minutes intervals, until the surface is smooth. As soon as the correct contour is achieved, stop working the paste - if you carry on for too long the paste will become sticky.

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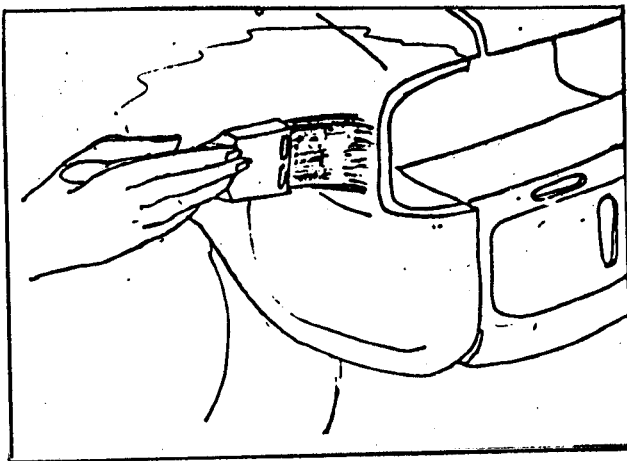
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FIGURE 3:



Once the filler has hardened, excess can be removed using a metal plane or file. From then on, progressively finer grades of wet and-dry paper should be used to rub down the filler until really smooth and flat. Always wrap the abrasive paper around a flat rubber, cork, or wooden block-otherwise the surface of the filler will not be completely flat.

FIGURE 4:



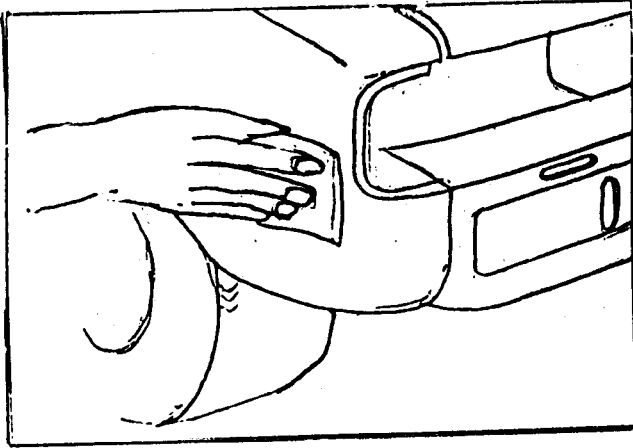
At this stage, the 'dent' should be surrounded by a ring of bare metal, which in turn should be encircled by the finely 'feathered' edge of the good paint-work. Feather the edges of adjoining paint-work. The whole repair area can now be sprayed or brush-painted with primer. If spraying, ensure adjoining areas are protected from over-spray. Note that at least one inch of the surrounding paint-work should be coated with primer. Primer has a 'thick' consistency which will fill small imperfections.

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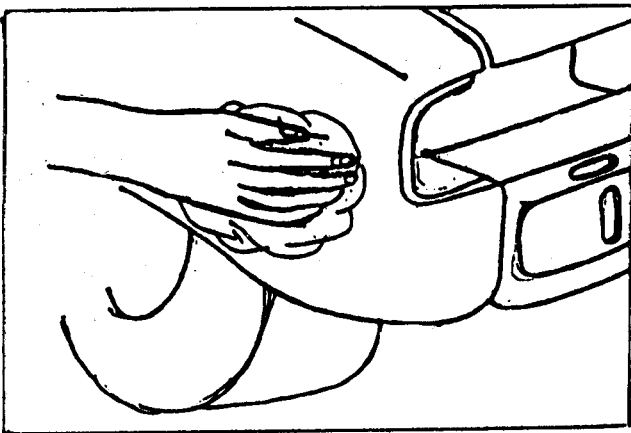
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FIGURE 5:



Again, using plenty of water, rub down the primer with a fine grade of wet-and dry paper until it is really smooth and well blended into the surrounding paint-work. Any remaining imperfections can now be filled by carefully applied knifing stopper paste. If stopper is used, it can be mixed with cellulose thinners to form a really thin paste which is ideal for filling small holes.

FIGURE 6:



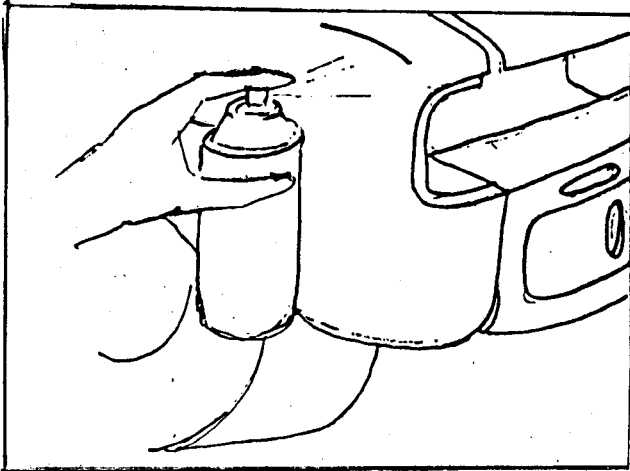
When the stopper has hardened, rub down the repair area again before applying the final coat of primer. Before rubbing down this last coat of primer, ensure the repair is blemish-free. Use more stopper if necessary. To ensure that the surface of the primer is really smooth use some finishing compound.

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Angka Giliran:.....

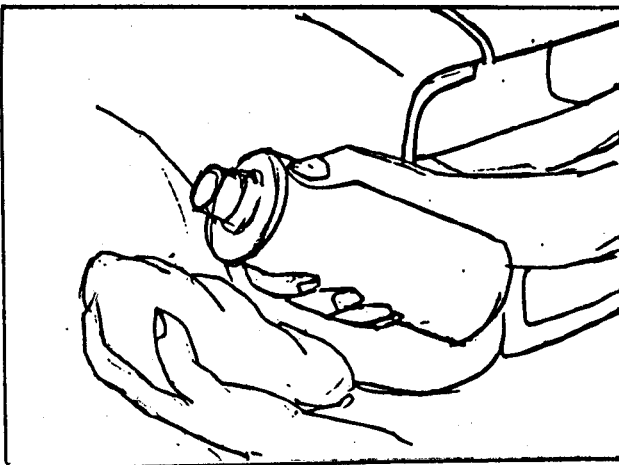
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FIGURE 7:



The top coat can now be applied. When working out-of-doors, paint spraying must be carried out in a warm, dry, windless and dust free atmosphere. Before commencing to spray, agitate the aerosol can thoroughly. Then spray a test area until the technique is mastered. Ensure the surrounding areas are protected from over-spray. Spray the centre of the repair area, working outwards with a circular motion. Apply the paint as several thin coats. The thickness should be built up using several thin layers of paint rather than one thick one.

FIGURE 8:



Allow the new paint at least two weeks to harden fully. Then, using a paint-work renovator or a very fine cutting paste, blend the edges of the paint into the existing paint-work. Finally, apply wax polish. Remember the quality of the finished job is proportional to the time and effort expended.

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APPENDIX

This Appendix consists of 2 printed pages.

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

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Appendix A:

Read the text below and answer Part I. (60 marks)

THE UNMANNED FACTORY

I **A** visit to a modern engineering factory is a fascinating experience. A few years ago, such establishments featured collections of manually operated tools that cut or otherwise fashioned metal components. Each machine was tended by its own operator, acting on instructions passed down a factory hierarchy from supervisors. 60

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II 10 The important jobs of transferring batches of components in various stages of completion between different machines were performed by human workers. 65

III 15 Today, the picture is changing. Many of the machining operations are left to computerized tools that for much of the time can operate untended. These machines obtain commands not from blue-collar supervisors, but from data sent along transmission grids from computers in another part of the factory. And machines such as robots play a large part in various crucial industrial operations, such as parts transfer, welding or painting, and even delicate assembly operations such as the fitting of tiny electrical components onto a printed circuit board. 70 VI

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25 This kind of automation has a drawback. It can be applied only when components are made in very large batches in which the type of part is seldom varied. The engineers responsible for the hardware spend so much time and effort setting it up that the machine costs are not justified unless the equipment turns out the same product for weeks or months on end. If, on the other hand, the factory needs continually to change the type of product that it makes to meet variations in customer demand, hard automation is not practical. As a result, the plant may have to abandon any notion of bringing into play the highest level of automatic machines, relying instead on conventional manual methods to produce its goods. 75

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35 A high proportion of manufacturing tasks involve handling operations. These include, for instance, lifting of parts from machines or off conveyors, packing, assembly jobs, holding components while they are machined, or the manipulation of tools such as drills or welding torches. When products are made with the assistance of hard automation, such handling tasks can be given to special-purpose automatic machinery set up to do just one kind of job. In cases where hard automation is not applicable, such operations can seldom be left to machines. Instead, people must be involved—which explains why such a high proportion of men and women on the shop floors of conventional factories work on handling jobs. 80

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45 In discrete manufacturing, the most important operations are performed by machines that cut, gouge, heat, drill, hammer, paint, weave, knit or weld. In all cases, they deal with solid raw material. To reduce labour costs, to speed up production and to make goods of higher quality, factory managers have for years attempted to introduce the maximum amount of automatic machinery to such processes. Once such special-purpose hardware has been installed to conduct a specific operation, it repeats it time and again, with human intervention kept to a minimum. 85

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105 VIII

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Workshops of this kind are far more common than factories that turn out items in long, unbroken runs in which the type of product does not vary.