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Centre Number

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Student Number

2007
HIGHER SCHOOL CERTIFICATE
EXAMINATION

Industrial Technology

Automotive Industries

General Instructions

- Reading time – 5 minutes
- Working time – $1\frac{1}{2}$ hours
- Write using black or blue pen
- Draw diagrams using pencil
- Board-approved calculators may be used
- Write your Centre Number and Student Number at the top of this page and pages 5, 9, 13 and 17

Total marks – 100

Section I Pages 2–12

60 marks

- Attempt Questions 1–3
- Allow about 55 minutes for this section

Section II Pages 13–19

40 marks

- Attempt Questions 4–5
- Allow about 35 minutes for this section

Section I

60 marks

Attempt Questions 1–3

Allow about 55 minutes for this section

Answer the questions in the spaces provided.

Marks

Use the following information to answer Questions 1, 2 and 3.

IND-TECH is a company in the automotive industry. The company has been awarded a major contract. To meet increased production requirements, the company needs to review its current facilities and practices.

Question 1 (20 marks)

- (a) Outline a method of maintaining quality control during increased production. **2**

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- (b) Identify strategies that the company could use to obtain information for the review of its current facilities and practices. **3**

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Question 1 continues on page 3

Question 1 (continued)

- (c) (i) Define the term *automation*. **1**

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- (ii) Explain how automation can be used to improve the efficiency of production practices. **3**

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- (d) Discuss how increased production could impact on the organisation and management of the company. **4**

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Question 1 continues on page 4

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Automotive Industries

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Student Number

Section I (continued)

Marks

Question 2 (20 marks)

- (a) Identify strategies that could be used to minimise waste from the increased production at IND-TECH. **2**

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- (b) What is meant by the term *workplace culture*? Outline a strategy that IND-TECH could use to enhance workplace culture. **3**

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Question 2 continues on page 6

Question 2 (continued)

- (c) Discuss using examples, the impact of government legislation on employees. **4**

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- (d) Evaluate the role of computer technology in training employees. **4**

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Question 2 continues on page 7

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**Industrial Technology
Automotive Industries**

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Centre Number

Section I (continued)

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Student Number

Marks

Question 3 (20 marks)

IND-TECH'S production targets for a 6-month period are shown.

<i>Month</i>	<i>Units</i>
January	1000
February	1500
March	1900
April	1800
May	2000
June	2300

(a) Outline reasons for producing production targets.

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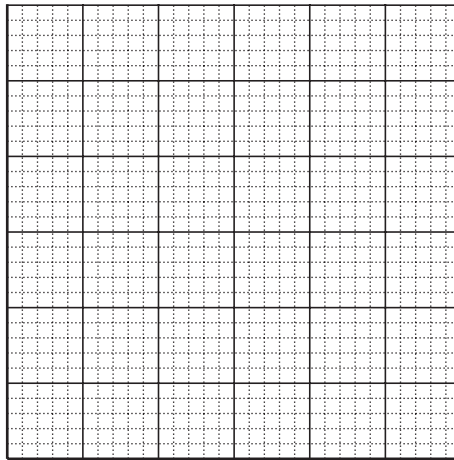
Question 3 continues on page 10

Question 3 (continued)

(b) Draw a graph on the grid to represent IND-TECH's production targets.

3

Units

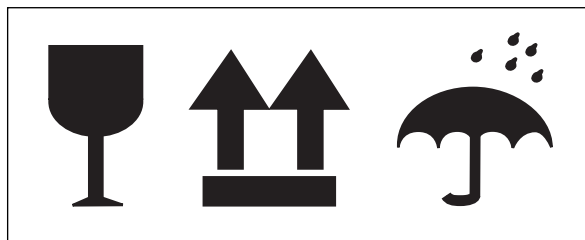


Months

(c) The symbols shown are examples of signage commonly used on packaging.

4

Discuss the purpose of placing graphical images on packaging.



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Question 3 continues on page 11

Question 3 (continued)

- (d) The company is required to package 10 500 units for distribution.

4

Complete the table indicating the cost of packaging these units. All prices are inclusive of GST.

Item	<i>Cost</i>	<i>Total cost</i>
Artwork	\$2100	\$2100
Materials	70c per unit	
Printing	35c per unit	
Labour	\$75 per 100 units	
	Total cost of packaging	
	Cost per unit	

Question 3 continues on page 12

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Student Number

Section II

40 marks

Attempt Questions 4–5

Allow about 35 minutes for this section

Answer the questions in the spaces provided.

Marks

Question 4 (20 marks)

- (a) Give TWO reasons why a motor vehicle might overheat when being driven in mild weather conditions. 2

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- (b) Outline how brake cooling technology has been improved in modern motor vehicles. 3

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Question 4 continues on page 14

Question 4 (continued)

- (c) Describe methods by which heat can be transferred away from the block in an engine cooling system. 4

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- (d) Outline changes that have been made to motor vehicle design to minimise rust. 4

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Question 4 continues on page 15

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**Industrial Technology
Automotive Industries**

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Student Number

Section II (continued)

Marks

Question 5 (20 marks)

- (a) How does an engine management system improve the operation of a motor vehicle? **2**

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- (b) Outline the advantages of a front wheel drive motor vehicle compared to a rear wheel drive motor vehicle. **3**

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Question 5 continues on page 18

Question 5 (continued)

- (c) Identify and describe causes of uneven tyre wear on a motor vehicle. **4**

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- (d) Describe the advantages of an automatic gearbox compared to a manual gearbox. **4**

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Question 5 continues on page 19

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