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Student Number

**2008**  
**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.

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**Marks**

Use the following information to answer Questions 1 and 2.

IND-TECH is a company in the automotive industry seeking to increase its market share by establishing an overseas facility.

### Question 1 (20 marks)

- (a) Identify TWO sources of finance that IND-TECH might use to fund the establishment of the overseas facility. **2**

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- (b) How can IND-TECH locate and evaluate emerging technology? **3**

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**Question 1 continues on page 3**

Question 1 (continued)

- (c) Explain issues that may have influenced IND-TECH’s decision to establish the overseas facility. **4**

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- (d) How could the introduction of the new facility affect the marketability of IND-TECH’s products? **4**

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**Question 1 continues on page 4**



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Section I (continued)

**Marks**

**Question 2** (20 marks)

- (a) Outline TWO issues that may be included in an *Environmental Impact Statement* (EIS). **2**

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- (b) Why is it important to have an effective occupational health and safety (OHS) policy in place when the new facility is established? **3**

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**Question 2 continues on page 6**

Question 2 (continued)

- (c) How could IND-TECH ensure that equal employment opportunity (EEO) principles are followed in the recruitment of new staff? 4

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- (d) Evaluate a range of computing applications that could be used to maintain communication between the local facility and the overseas facility. 4

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**Question 2 continues on page 7**



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**Section I (continued)**

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**Marks**

**Question 3** (20 marks)

- (a) Name TWO software applications that can be used to graph production costs. **2**

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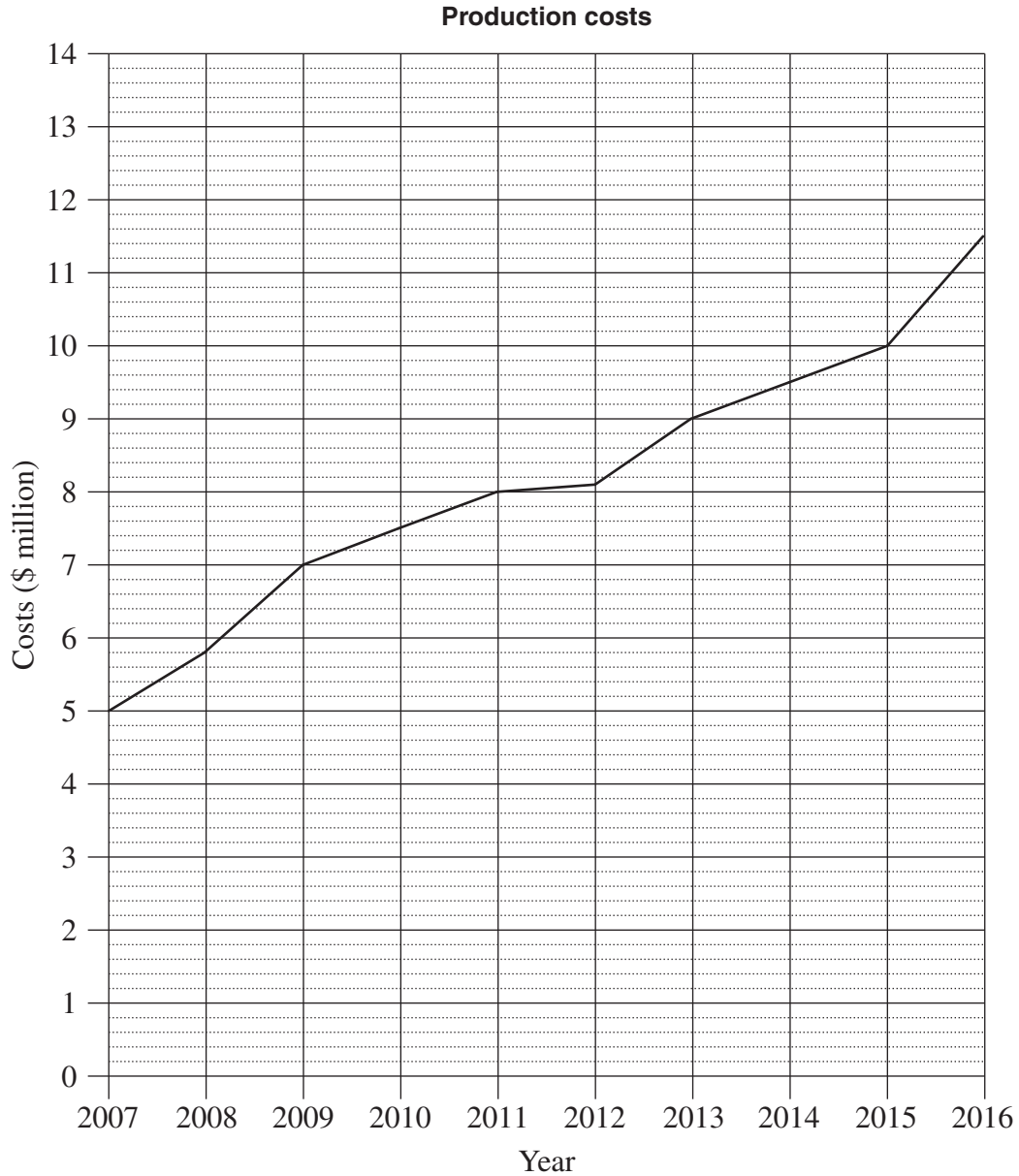
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**Question 3 continues on page 10**

Question 3 (continued)

Use the following information to answer part (b).

The graph shows IND-TECH's past and predicted annual local production costs.



IND-TECH's predicted annual overseas production costs are shown in the table.

<i>Year</i>	2009	2010	2011	2012	2013	2014	2015	2016
<i>Production costs (\$ million)</i>	10.0	8.5	8.0	6.0	6.5	7.0	7.5	7.8

**Question 3 continues on page 11**

Question 3 (continued)

(b) (i) Graph the predicted annual overseas production costs on the grid on the previous page. **2**

(ii) When should overseas production costs match local production costs? **1**

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(iii) Describe the trends in the graphs for local and overseas production costs. **4**

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(iv) Outline factors IND-TECH would need to consider when estimating predicted production costs. **4**

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**Question 3 continues on page 12**



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Section II

40 marks

Attempt Questions 4–5

Allow about 35 minutes for this section

Answer the questions in the spaces provided.

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Marks

Question 4 (20 marks)

(a) List TWO ways to diagnose a badly-worn shock absorber.

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(b) Where is a differential located on a rear wheel drive vehicle? Outline TWO devices that can achieve more usable traction from vehicles with differentials.

3

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Question 4 continues on page 14

Question 4 (continued)

- (c) How does the operation and performance of a rotary engine differ from a four-stroke piston engine? **4**

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- (d) Explain the methods used to minimise gas emissions from a motor vehicle exhaust system. **4**

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**Question 4 continues on page 15**



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Section II (continued)

**Marks**

**Question 5** (20 marks)

- (a) List TWO differences in the ignition of diesel and petrol engines. **2**

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- (b) Describe, using examples, how the electrical system of a motor vehicle is used to improve the safety of the vehicle's occupants. **3**

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**Question 5 continues on page 18**

Question 5 (continued)

- (c) Describe the steps in bleeding a brake system on a motor vehicle. **4**

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- (d) Describe the process of diagnosing and correcting a faulty wheel alignment. **4**

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**Question 5 continues on page 19**



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