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Centre Number

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Student Number

2008
HIGHER SCHOOL CERTIFICATE
EXAMINATION

Industrial Technology

Electronics 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 13–20

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 and 2.

IND-TECH is a company in the electronics 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

Industrial Technology
Electronics Industries

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Centre Number

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Student Number

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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**Industrial Technology
Electronics Industries**

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Centre Number

Section I (continued)

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Student Number

Marks

Question 3 (20 marks)

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

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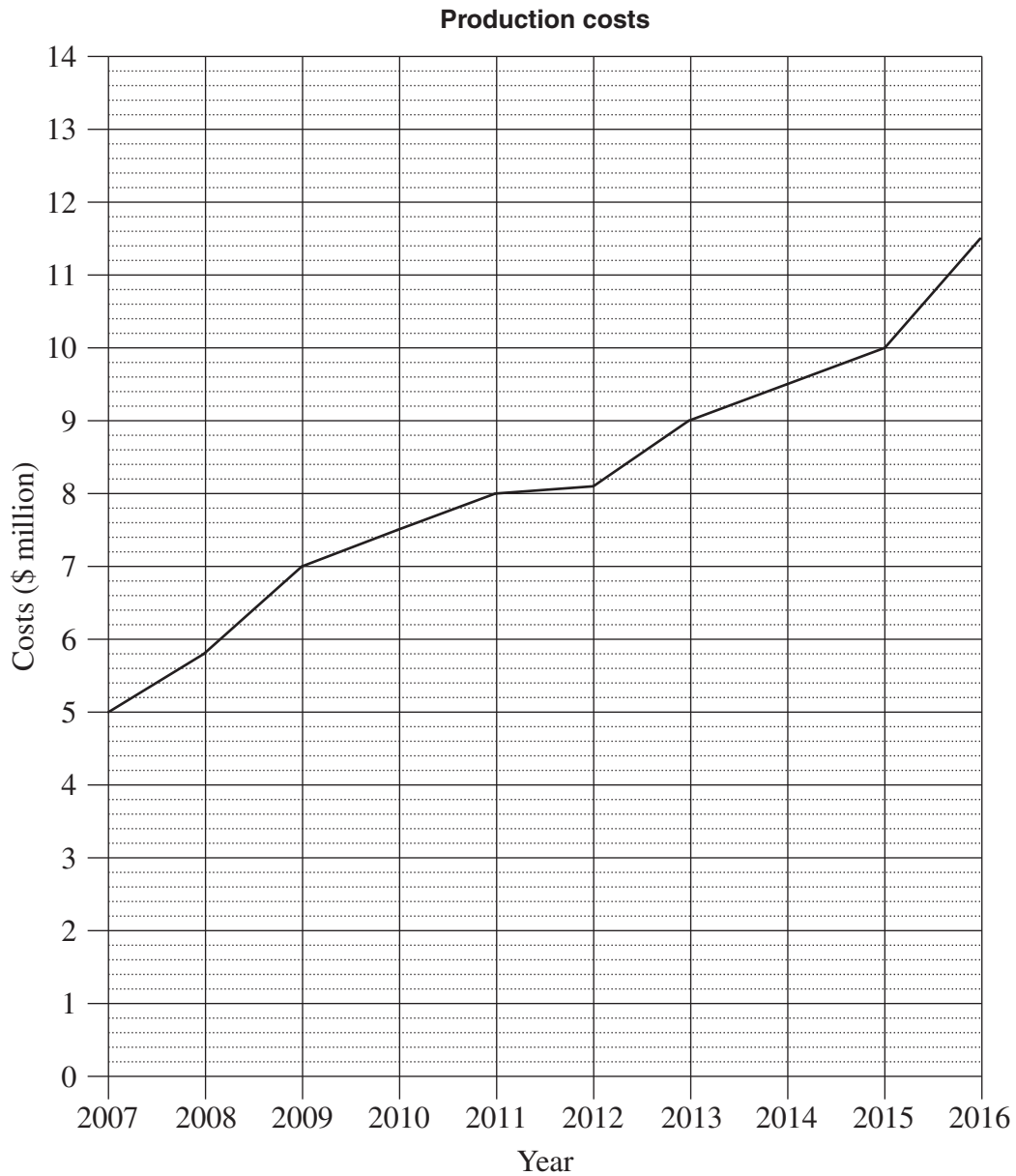
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Question 3 continues on page 10

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

**Industrial Technology
Electronics Industries**

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Centre Number

Section II

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Student Number

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) Calculate the resistance in a 24 volt circuit with a current of 1.2 amp. **2**

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- (b) Describe TWO different 12 volt power sources. **3**

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Question 4 continues on page 14

Question 4 (continued)

- (c) How are inductive coils used in transformers to ‘step up’ or ‘step down’ a voltage? 4

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- (d) Explain, using a diagram, how a variable capacitor works. In your explanation, include a practical application for its use. 4

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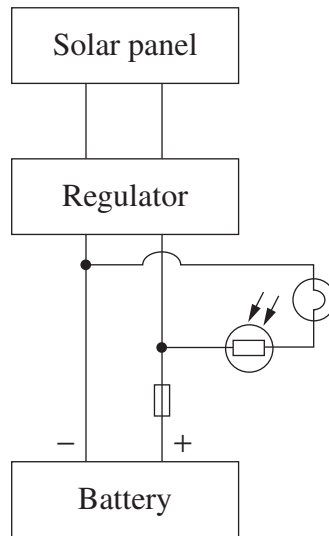
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Question 4 continues on page 15

Question 4 (continued)

(e) A schematic diagram representing a solar powered light is shown.

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Explain the operation of the circuit. In your answer, refer to the function of each component.

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Question 4 continues on page 16

Question 4 (continued)

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End of Question 4

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Centre Number

Section II (continued)

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Student Number

Marks

Question 5 (20 marks)



- (a) Interpret the information on the label of the rechargeable battery in the photograph. **2**

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Question 5 continues on page 18

Question 5 (continued)

- (b) Describe, with the aid of sketches, the difference between using a voltmeter and an ammeter to test a circuit. **3**

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Question 5 continues on page 19

Question 5 (continued)

- (c) Compare TWO methods of PCB manufacture. **4**

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- (d) Explain the use and application of heat shrink in electronics. **4**

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Question 5 continues on page 20

