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Centre Number

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Student Number

**2005**  
**HIGHER SCHOOL CERTIFICATE**  
**EXAMINATION**

# Industrial Technology

## Building and Construction 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.

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Marks

IND-TECH is a company in the building and construction industry. The introduction of improved marketing strategies has increased demand for IND-TECH's products. Management is aware that a planned restructure and expansion program will impact on IND-TECH's production.

### Question 1 (20 marks)

- (a) Greater demand for IND-TECH's products can be met through increased production. 2

Identify TWO ways in which increased production can be achieved.

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- (b) Identify a marketing strategy, and outline how this strategy could increase the demand for a product. 3

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Question 1 continues on page 3

Question 1 (continued)

- (c) Define the term *quality control*. Explain how quality control can be used to improve IND-TECH's products. 4

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- (d) IND-TECH's management is planning to restructure its workforce. 4

Discuss how management will ensure stable industrial relations during this operation.

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**Question 1 continues on page 4**

Question 1 (continued)

- (e) Discuss the issues related to expanding IND-TECH in its present location rather than moving to a new location.

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**End of Question 1**

**Industrial Technology  
Building and Construction  
Industries**

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**Section I (continued)**

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**Marks**

**Question 2 (20 marks)**

- (a) List TWO advantages of *multiskilling* in industry. **2**

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- (b) Explain an effect that specialisation could have on production and on the workforce. **3**

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**Question 2 continues on page 6**

Question 2 (continued)

- (c) Explain the term *sustainable development*, and recommend ways in which IND-TECH might make its operation more sustainable. 4

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- (d) Discuss the influence of occupational health and safety (OHS) legislation on production. 4

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**Question 2 continues on page 7**

Question 2 (continued)

(e) Before expanding or relocating, IND-TECH must prepare an Environmental Impact Statement (EIS).

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Identify and discuss issues that could be covered in this statement.

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End of Question 2

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**Section I (continued)**

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**Marks**

**Question 3 (20 marks)**

- (a) Outline the purpose of a materials list in the planning or the production process. **2**

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- (b) Explain why shapes and colours are used in safety symbols. Use an example to support your answer. **3**

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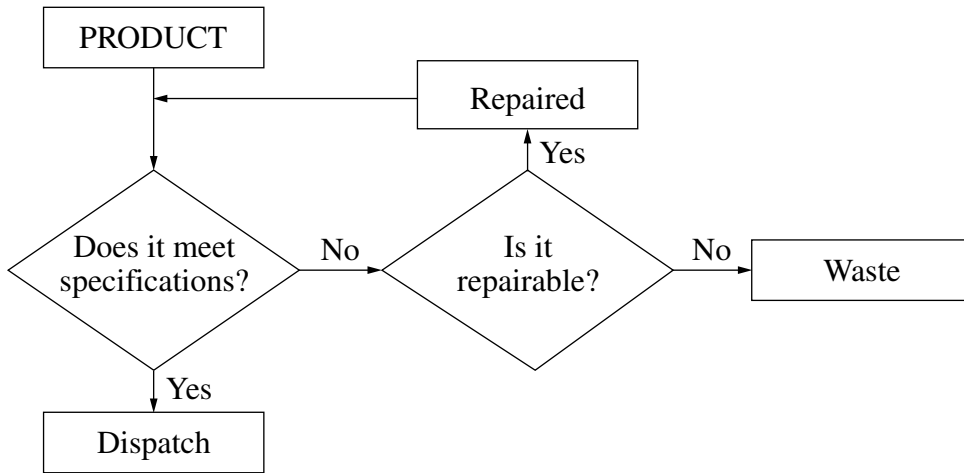
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**Question 3 continues on page 10**

Question 3 (continued)

(c) The diagram shows a process within a production system.

4



Identify the type of diagram used. Explain why this type of diagram is suitable for representing the steps outlined in this production system.

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Question 3 continues on page 11

Question 3 (continued)

- (d) Outline the importance of function and aesthetics in the design of a product. **4**

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**Question 3 continues on page 12**

Question 3 (continued)

(e) IND-TECH's management has employed an external consultant to produce a report on the planned restructuring and expansion of IND-TECH. 7

Outline the processes the consultant would follow when:

- collecting and analysing information
- identifying the problems
- recommending possible outcomes
- preparing a draft report, and
- presenting the findings.

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End of Question 3

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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.

Marks

Question 4 (20 marks)

(a) Site and contour plans are required prior to beginning construction on a building site.

(i) Identify the information that is contained in: 2

a site plan; .....

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a contour plan. ....

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(ii) Outline how a steep building site would be represented on a contour plan. Use a sketch to illustrate your answer. 3

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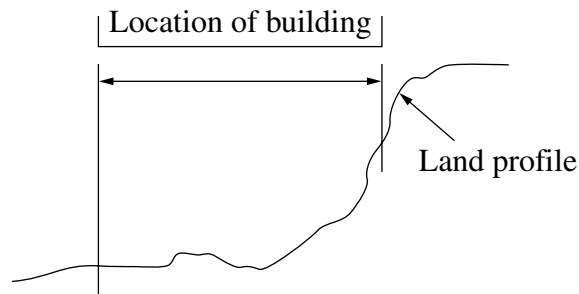
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Question 4 continues on page 14

Question 4 (continued)

(b) A cross-section of a building site is given.

4



Describe a method of site preparation that could be used for slab-on-ground construction on the building site shown.

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Question 4 continues on page 15

Question 4 (continued)

- (c) An alternative construction technique to slab-on-ground is pier construction. **4**

Outline the advantages and disadvantages of pier construction.

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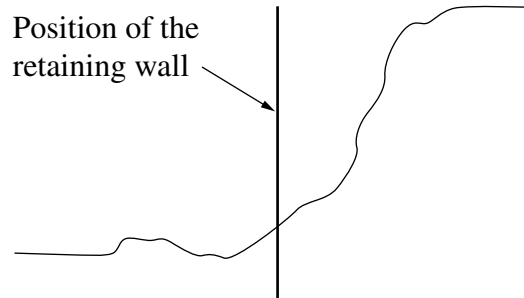
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**Question 4 continues on page 16**

Question 4 (continued)

(d) A retaining wall is to be built in the position shown.

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Describe the purpose of the wall and a suitable construction technique. Use sketches to illustrate your answer.

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End of Question 4



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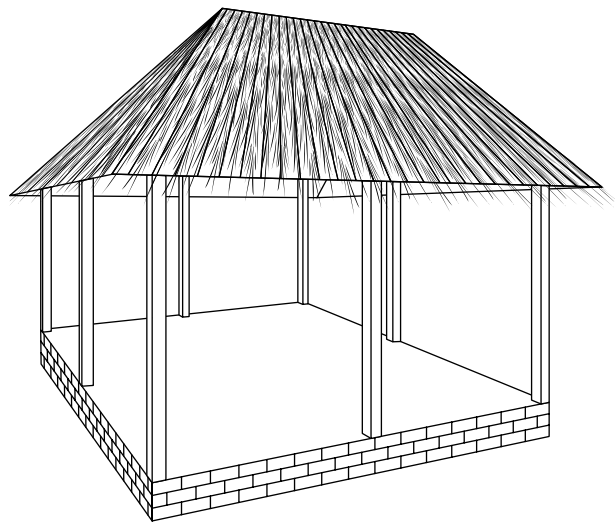
Section II (continued)

**Marks**

**Question 5** (20 marks)

Use the following information to answer Question 5.

IND-TECH has been commissioned to construct the building shown.



The construction site has been cleared. Strip and pad footings have been dug and concrete poured.

(a) What are the constituents of concrete?

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**Question 5 continues on page 18**

Question 5 (continued)

- (b) Outline the differences between a strip and a pad footing, referring to both their construction and use. Use sketches where appropriate. 3

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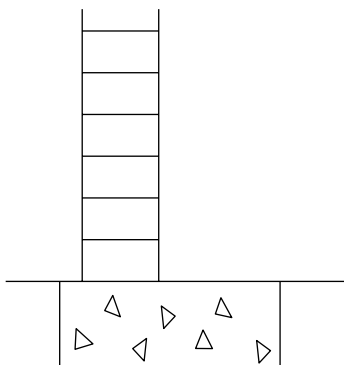
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- (c) The floor for the building is to be built on piers. 4

Complete the sketch showing a typical pier and floor structure that would be constructed on the strip footing.



Question 5 continues on page 19

Question 5 (continued)

- (d) The sides of the building are open and the roof is supported on eight posts. 4

Sketch and describe TWO suitable methods of attaching the posts to the floor/subfloor construction.

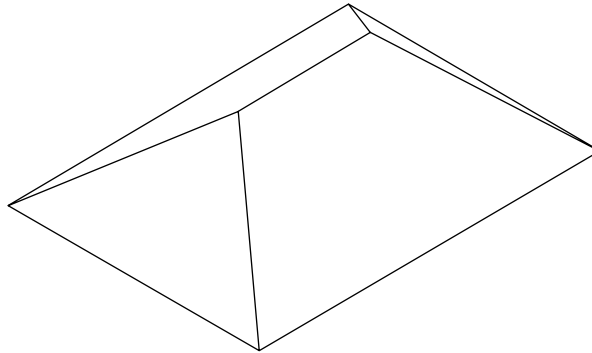
<b>Method 1</b>	<b>Method 2</b>
Sketch	Sketch
Description ..... ..... ..... ..... ..... ..... ..... ..... ..... ..... .....	Description ..... ..... ..... ..... ..... ..... ..... ..... ..... ..... .....

Question 5 continues on page 20

Question 5 (continued)

(e) Explain how to construct a hipped roof for the building.

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