CARIBBEAN EXAMINATIONS COUNCIL

CARIBBEAN SECONDARY EDUCATION CERTIFICATE® EXAMINATION

24 MAY 2017 (a.m.)

M1701374020

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TEST CODE | 0 | 1 | 3 | 7 | 4 | 0 | 2 | 0 |

SUBJECT INDUSTRIAL TECHNOLOGY
OPTION C – BUILDING AND FURNITURE TECHNOLOGY – Paper 02

PROFICIENCY TECHNICAL

REGISTRATION NUMBER | | | | | | | | | | |

SCHOOL/CENTRE NUMBER					

NAME OF SCHOOL/CENTRE

CANDIDATE'S FULL NAME (FIRST, MIDDLE, LAST)

DATE OF BIRTH | D | D | M | M | Y | Y | Y | Y |

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FORM TP 2017078

TEST CODE 01374020

MAY/JUNE 2017

CARIBBEAN EXAMINATIONS COUNCIL

CARIBBEAN SECONDARY EDUCATION CERTIFICATE® EXAMINATION

INDUSTRIAL TECHNOLOGY

OPTION C – BUILDING AND FURNITURE TECHNOLOGY

Paper 02 – Technical Proficiency

2 hours 10 minutes

READ THE FOLLOWING INSTRUCTIONS CAREFULLY.

1. This paper consists of FIVE compulsory questions.
2. Use sketches where necessary to support your answers.
3. Write your answers in the spaces provided in this booklet.
4. Do NOT write in the margins.
5. You may use a silent, non-programmable calculator to answer questions.
6. This paper contains metric dimensions only. You should work your answers in the metric system.
7. If you need to rewrite any answer and there is not enough space to do so on the original page, you must use the extra lined page(s) provided at the back of this booklet. **Remember to draw a line through your original answer.**
8. **If you use the extra page(s) you MUST write the question number clearly in the box provided at the top of the extra page(s) and, where relevant, include the question part beside the answer.**

DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO.

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1. (a) State the difference between the natural and the built environment.

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(2 marks)

(b) Figure 1 shows the ground floor plan of a residential building.

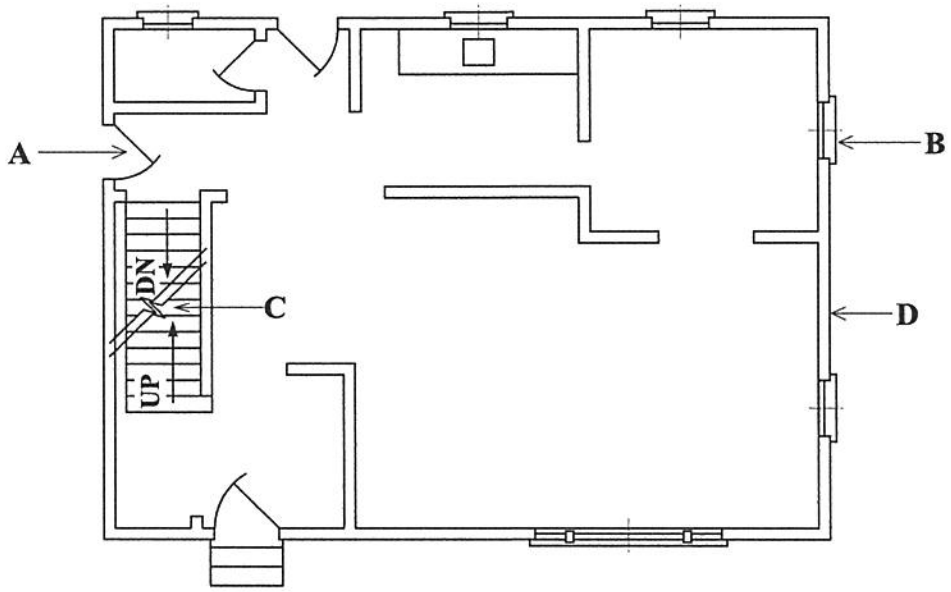


Figure 1. Ground floor plan

(i) Name EACH of the elements of the building labelled A–D.

A .....

B .....

C .....

D .....

(4 marks)

GO ON TO THE NEXT PAGE

(ii) Explain TWO functional requirements for EACH of the building elements identified as A, B and D on the floor plan.

A .....

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B .....

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D .....

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(6 marks)

(c) The working drawing for the building in Figure 1 specifies that a strip foundation 450 mm wide be constructed at the depth of 750 mm.

Produce a neat, labelled and dimensioned sectional sketch of a typical strip foundation for the building.

(6 marks)

Total 18 marks

2. (a) A client needs advice on selecting and preparing a site for his residential dwelling.

(i) State TWO factors to consider when choosing the site.

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(2 marks)

(ii) Name TWO temporary services needed to enable site work.

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(2 marks)

(iii) State TWO reasons for hoarding the building site.

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(2 marks)

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(b) Use suitable labelled line diagrams to show how the following tools are used to check the squareness of a simple rectagular building:

(i) Builder's square

(3 marks)

(ii) Tape measure using the 3:4:5 method

(3 marks)

(c) Produce a labelled pictorial sketch to illustrate a typical **corner** profile board showing the following details:

Trench lines and wall lines

(6 marks)

Total 18 marks

GO ON TO THE NEXT PAGE

3. (a) State the difference between hardwoods and softwoods.

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(2 marks)

(b) Figure 2 shows the cross-section of a tree trunk with its parts labelled A–F. Name FOUR of the labelled parts.

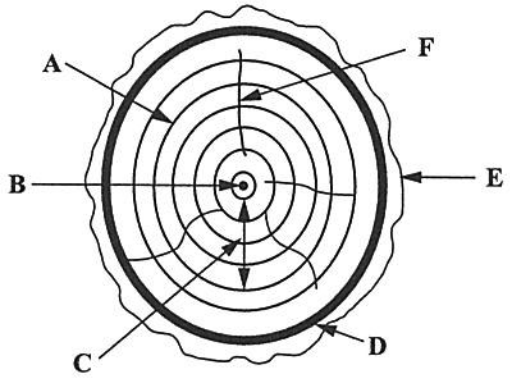


Figure 2. Cross-section of a tree trunk

A: .....

B: .....

C: .....

D: .....

E: .....

F: .....

(4 marks)

(c) A lumber yard dealer plans to convert a supply of logs into suitable lumber for building contractors. He was advised to use the quarter sawing method of conversion.

(i) Suggest TWO disadvantages of the quarter sawing method of conversion for producing lumber for the construction industry.

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(2 marks)

(ii) For the benefit of the lumber yard dealer, suggest ONE other method of timber conversion that is suitable for producing lumber for the construction industry.

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(1 mark)

(iii) Justify why the method of conversion stated in (c) (ii) is more suitable for producing lumber for the construction industry by listing TWO advantages and ONE disadvantage of that method.

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(3 marks)

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(d) On a building site, structural timber can be affected by distortion, vegetation growth, severe weather and poor air circulation.

(i) To avoid wastage of material, outline THREE steps that should be taken to store structural timber on a building site.

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(3 marks)

(ii) Calculate the moisture content for a sample of wood which weighed 24.5 grams when wet and 18.6 grams when dried.

Note: You are required to state the formula and show all working.

(3 marks)

Total 18 marks

4. (a) Give THREE examples of products that are made from EACH of the following building construction materials:

(i) Plywood

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(3 marks)

(ii) Plastic

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.....

(3 marks)

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(b) Use single line diagrams to show the plan for the following roof types commonly used in the Caribbean region:

(i) Gable

(ii) Hip

(iii) Hip and valley

(6 marks)

(c) Figure 3 shows a line diagram representing a sectional elevation between two floors with an open section to be fitted with a straight flight stairs. The height of each riser is 175 mm, the total rise is 2625 mm and the width of each tread is 300 mm.

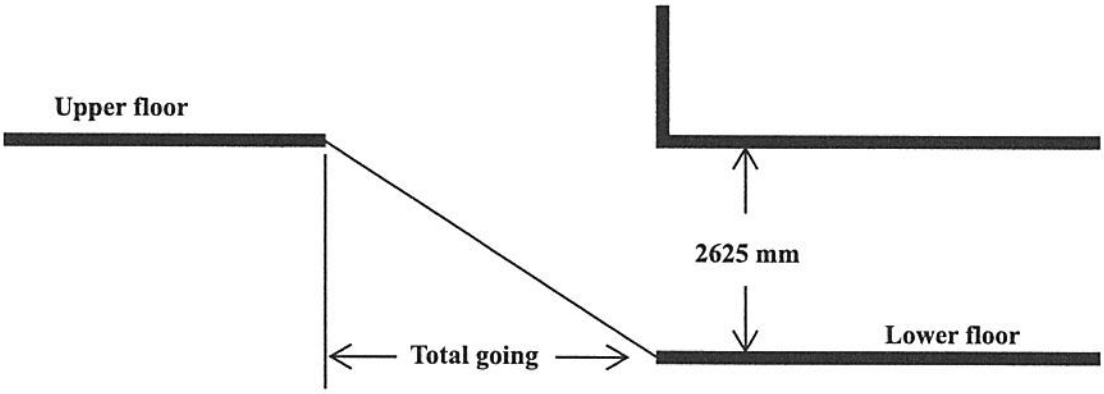


Figure 3. Sectional elevation between floors to house a stairs

Determine by calculation:

(i) The total number of risers required

(2 marks)

(ii) The total going for the staircase

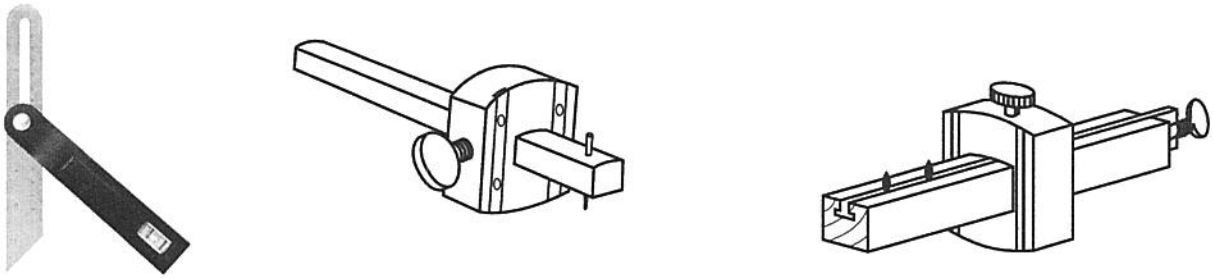
(3 marks)

(iii) Whether or not the dimensions for the stairs meet the requirement for safety and comfort

(1 mark)

Total 18 marks

5. (a) Figure 4, shows three types of furniture making tools.



A B C

Figure 4. Types of furniture making tools

(i) Name EACH of the tools labelled A, B and C in Figure 4.

A .....

B .....

C .....

(3 marks)

(ii) State ONE use for EACH tool identified in (a) (i).

A .....

B .....

C .....

(3 marks)

(b) Give the names of TWO power tools that are used to obtain the hole required to fit a face basin in a bathroom cupboard.

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(2 marks)

(c) Identify ONE machine EACH that is used to perform the following operations:

(i) Cutting irregular patterns on wood

.....

(1 mark)

(ii) Producing a 45° edge on a piece of stock

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(1 mark)

(iii) Producing the mortice in a table leg

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(1 mark)

(iv) Converting a piece of square stock into a cylindrical shape

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(1 mark)

(d) Figure 5 shows the frame for a coffee table to be built from solid timber materials. The rails are fixed to the table legs using mortice and tenon joints.

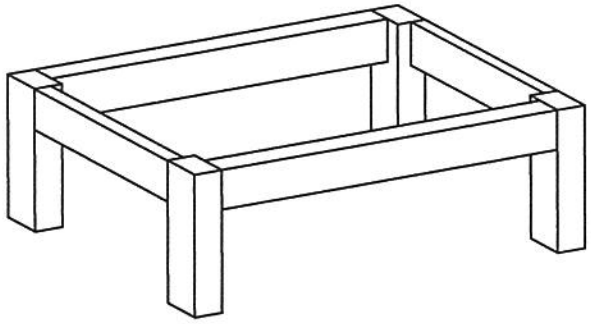


Figure 5. Frame of a coffee table

Outline THREE sequential steps of procedure to cut the tenon for the rails.

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(6 marks)

Total 18 marks

END OF TEST

IF YOU FINISH BEFORE TIME IS CALLED, CHECK YOUR WORK ON THIS TEST.

EXTRA SPACE

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Question No. ☐

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1. **Fill in all the information requested clearly in capital letters.**

TEST CODE: | 0 | 1 | 3 | 7 | 4 | 0 | 2 | 0 |

SUBJECT: INDUSTRIAL TECHNOLOGY
OPTION C – BUILDING AND FURNITURE TECHNOLOGY – Paper 02

PROFICIENCY: TECHNICAL

REGISTRATION NUMBER: | | | | | | | | | | |

FULL NAME: _____
(BLOCK LETTERS)

Signature: _____

Date: _____

2. **Ensure that this slip is detached by the Supervisor or Invigilator and given to you when you hand in this booklet.**

3. **Keep it in a safe place until you have received your results.**

INSTRUCTION TO SUPERVISOR/INVIGILATOR:

Sign the declaration below, detach this slip and hand it to the candidate as his/her receipt for this booklet collected by you.

I hereby acknowledge receipt of the candidate's booklet for the examination stated above.

Signature: _____
Supervisor/Invigilator

Date: _____



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