

FORM TP 2014048



TEST CODE **01309020**

MAY/JUNE 2014

C A R I B B E A N E X A M I N A T I O N S C O U N C I L

**C A R I B B E A N S E C O N D A R Y E D U C A T I O N C E R T I F I C A T E[®]
E X A M I N A T I O N**

BUILDING TECHNOLOGY

OPTION I – WOODS

Paper 02 – Technical Proficiency

2 hours 40 minutes

26 MAY 2014 (p.m.)

READ THE FOLLOWING INSTRUCTIONS CAREFULLY.

1. This paper consists of THREE sections. You MUST answer FIVE questions.

Section A: You must answer the only COMPULSORY question in this section.

Section B: You must answer THREE questions from this section.

Section C: You must answer ONE question from this section.

2. Use sketches where necessary to support your answers.
3. Only sketches for Question ONE should be done on the drawing sheets provided. ALL other sketches should be done in the answer booklet.
4. Silent, non-programmable calculators may be used.
5. You are advised to take some time to read through the paper and plan your answers.

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01309020/F 2014



SECTION A

You are advised not to spend more than 50 minutes on this question.

1. Figure 1 below shows a pictorial drawing of a combined desk and bookcase. The bookcase shows two compartments but it is to be redesigned to show three compartments. The lower compartment labelled 'X' should be divided to store compact disks (CDs) and newspapers while the upper compartment labelled 'Y' should be used to store textbooks. The top rail for the desk should be redesigned to receive two small drawers for storing pens, pencils and other small items.

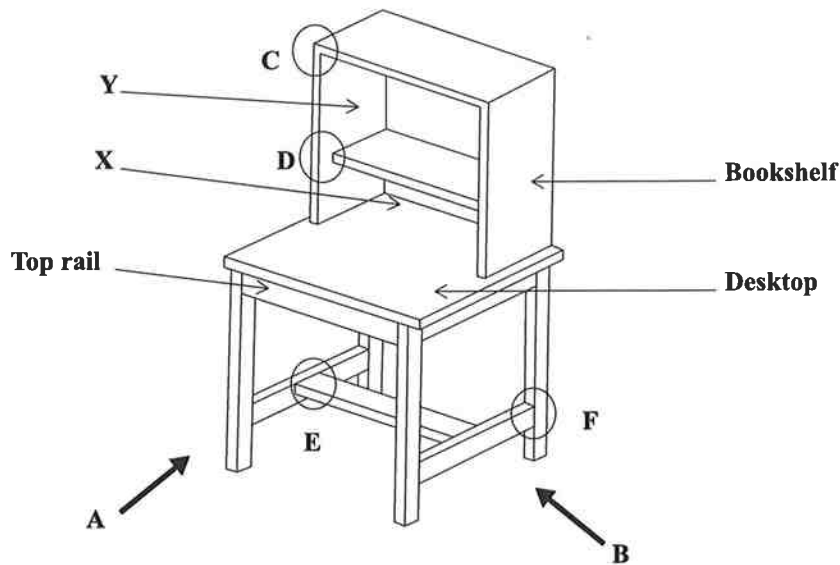


Figure 1. Sketch of combined desk and bookcase

- (a) Using neat, proportional, ruler-assisted sketches, produce the following views of the redesigned combined desk and bookcase:
- (i) The correct view looking in the direction of arrow A. **(12 marks)**
 - (ii) The correct view looking in the direction of arrow B. **(8 marks)**
 - (iii) Identify EACH of the views by name. **(2 marks)**
 - (iv) Name THREE types of lines that are generally used for detailed working drawings. **(3 marks)**
- (b) State the MOST suitable wood joint to be used for EACH of the sections labelled C, D, E and F in Figure 1. **(4 marks)**
- (c) (i) State TWO suitable solid timber materials that may be used to make the frame for the desk and bookcase. **(2 marks)**
- (ii) State TWO types of suitable manufactured boards that can be used to make both the desktop and the bookcase. **(2 marks)**

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- (d) Name TWO methods that can be used to fix the table top to the frame. **(2 marks)**
- (e) State how the back of the bookcase could be designed to prevent books from falling off. **(2 marks)**
- (f) The table below represents an incomplete Bill of Quantities for materials. Copy the table and write, in correct order, the most important headings for EACH of the columns labelled A, B and C. **(3 marks)**

TABLE 1: INCOMPLETE BILL OF QUANTITIES

A	B	C

Total 40 marks

SECTION B

You are required to answer THREE questions from this section. EACH question is worth 20 marks.

2. (a) List FOUR advantages that manufactured boards have over solid wood. **(4 marks)**
- (b) State TWO advantages and ONE disadvantage of EACH of the following methods used for seasoning timber:
- (i) Kiln **(3 marks)**
 - (ii) Air **(3 marks)**
- (c) Use sketches to show the following:
- (i) One type of seasoning defect **(2 marks)**
 - (ii) One type of growth defect **(2 marks)**
- (d) Using suitable labelled sketches, show ANY TWO of the timber conversion methods below:
- (i) Quarter sawing
 - (ii) Plain sawing/Through and through
 - (ii) Tangential/Back sawing **(6 marks)**

Total 20 marks

3. (a) State TWO specific uses for EACH of the following types of chisels:

(i) Bevelled-edge

(ii) Mortise

(4 marks)

(b) Figure 2 shows the damaged/chipped edge of a chisel to be reconditioned.

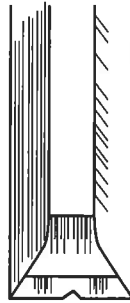


Figure 2. Chisel with chipped edge

List, in sequential order, THREE steps that should be followed to remove the chipped edge on the wood chisel. (6 marks)

(c) Using neat sketches, show the difference between the following angles in relation to reconditioning the wood chisel shown in Figure 2:

(i) Grinding angle

(ii) Sharpening angle

(4 marks)

(d) Use sketches to show TWO appropriate ways to fully use the entire surface of the oilstone when reconditioning the chisel shown in Figure 2 to achieve the sharpness required.

(6 marks)

Total 20 marks

4. (a) A picnic table made from timber is to be used as outdoor furniture. Suggest TWO suitable types of finishing materials that could be used to protect the timber from exposure to weather conditions. (2 marks)
- (b) List THREE techniques that can be used to apply finishes to wooden furniture. (3 marks)
- (c) Name TWO types of wood stains. (2 marks)
- (d) State THREE reasons for staining a piece of furniture. (3 marks)
- (e) The following finishing materials are to be used to prepare a book stand to receive a clear coat finish. Explain, in sequential order, how each material is to be used.

Hint: Sandpaper is to be used twice.

- (i) Sealer (2 marks)
- (ii) Wood filler (2 marks)
- (iii) Shellac (2 marks)
- (iv) Sandpaper (4 marks)

Total 20 marks

5. Figure 3 shows a pictorial view of a stationary jointer.

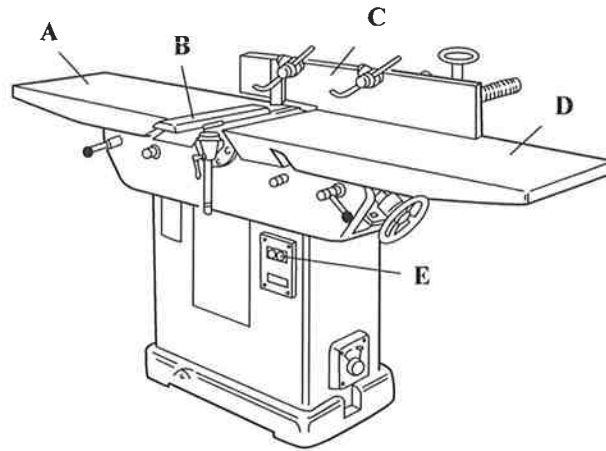


Figure 3. Pictorial view of a stationary jointer

- (a) Name any FOUR of the parts labelled A, B, C, D and E in Figure 3. **(4 marks)**
- (b) List THREE cutting operations that can be performed on the jointer. **(3 marks)**
- (c) List THREE factors which determine the quality of the finish to be achieved when planing on the jointer. **(3 marks)**
- (d) Explain, using not more than two sentences for EACH process, the correct way to position your hands when operating the jointer during the following processes:
- (i) At the start of the cut
 - (ii) Halfway through the cut
 - (iii) Completing the cut **(6 marks)**
- (e) Using a suitable sectional sketch, show the depth of cut that is made on the edge of a piece of timber as it makes one pass over the cutter head of the jointer. **(4 marks)**

Total 20 marks

6. Figure 4 shows the pictorial view of FOUR types of ironmongery used in cabinet work.

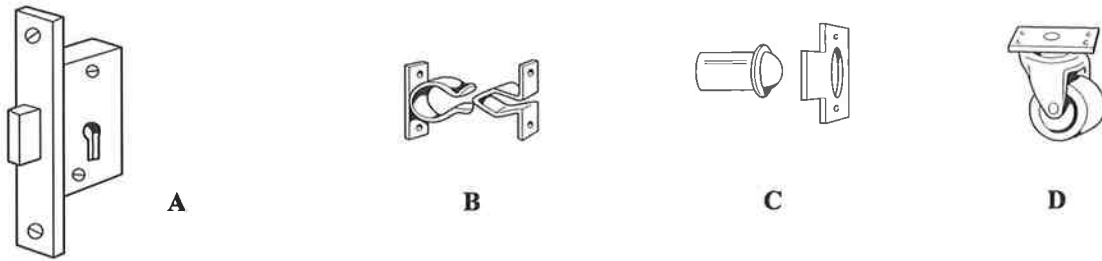


Figure 4. Types of ironmongery

- (a) Name EACH of the ironmongery labelled A, B, C and D in Figure 4. **(4 marks)**
- (b) State the type of ironmongery MOST suitable for use in the following situations:
 - (i) attaching a wooden gate to a picket fence to enclose an outdoor garden and
 - (ii) securing/fixing one of two double doors in position **(2 marks)**
- (c) Give ONE reason for selecting EACH type of ironmongery referred to in (b) (i) and (ii) above. **(2 marks)**
- (d) Name TWO materials suitable for making ironmongery exposed to climatic conditions. **(2 marks)**
- (e) Figure 5 shows the pictorial view of a bedside cabinet with one drawer and a door.

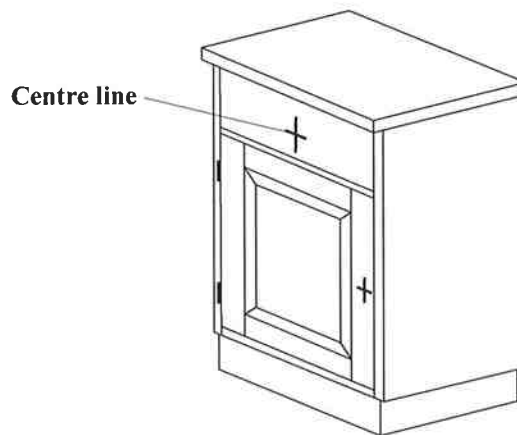


Figure 5. Bedside cabinet

- (i) Explain, with the aid of neat sketches, TWO layout processes that should be used to locate the hole indicated by the centre line shown on the drawer in Figure 5. **(4 marks)**
- (ii) Explain, in sequential order, THREE steps to be taken to correctly install a pair of hinges to the bedside cabinet door shown in Figure 5. **(6 marks)**

Total 20 marks

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SECTION C

You are required to answer ONE question from this section. EACH question is worth 20 marks.

7. (a) State THREE features of EACH of the following cabinet construction methods:
- (i) Framed carcass
 - (ii) Solid end carcass **(6 marks)**
- (b) Name TWO materials that are used for cabinet counter tops. **(2 marks)**
- (c) Name TWO types of ironmongery that are generally used for cabinet drawers. **(2 marks)**
- (d) Figure 6 shows the partial elevation of ONE corner of a rebated cabinet door.

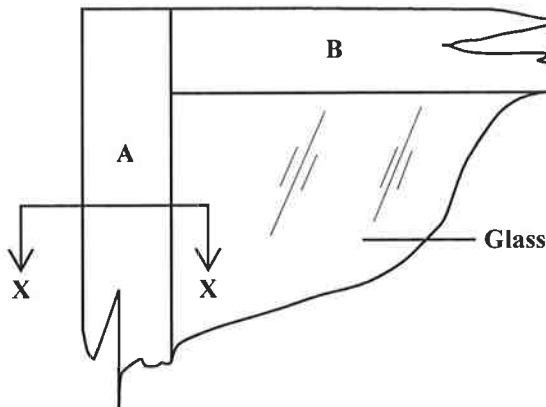


Figure 6. Partial elevation of a rebated cabinet door

- (i) Produce a labelled exploded pictorial view to show the joint which is to be used at the corner of the parts labelled A and B on the elevation. **(6 marks)**
- (ii) Make a suitable labelled sketch of the section labelled X — X to show the method to be used to keep the glass secured in the framing of the cabinet door. **(4 marks)**

Total 20 marks

8. Figure 7 shows part of a pedestal stem with three identical legs for a small kitchen table.

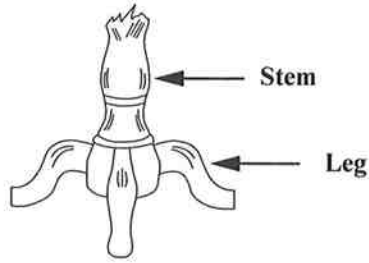


Figure 7. Stem of pedestal stand

- (a) (i) Name THREE types of woodwork tools that may be used to cut the legs for the pedestal stand. **(3 marks)**
- (ii) List FIVE steps to be followed to layout and cut the three legs for the stand. **(5 marks)**
- (b) (i) Use neat, labelled sketches to show TWO different methods that can be used to join the legs to the stem of the pedestal stand. **(8 marks)**
- (ii) Name EACH of the joints produced in (b) (i) above. **(2 marks)**
- (iii) Briefly explain ONE method which may be used to layout the position of the joints for the three legs. **(2 marks)**

Total 20 marks

9. Figure 8 shows the pictorial drawing of an upholstered stool with an attractively piped border along the bottom edges of the rails.

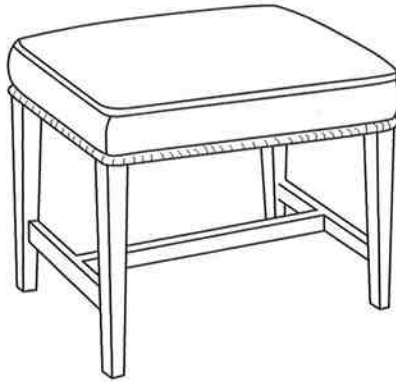


Figure 8. Pictorial drawing of upholstered stool

- (a) (i) List FOUR upholstering tools required to upholster the seat of the stool. **(4 marks)**
- (ii) List FOUR types of upholstering materials that may be used for creating the seat. **(4 marks)**
- (b) State TWO different methods that can be used to provide support to the drop-on/removable seat. **(2 marks)**

- (c) Figure 9 shows a defective chair seat that needs to have TWO of the webbing strips replaced.

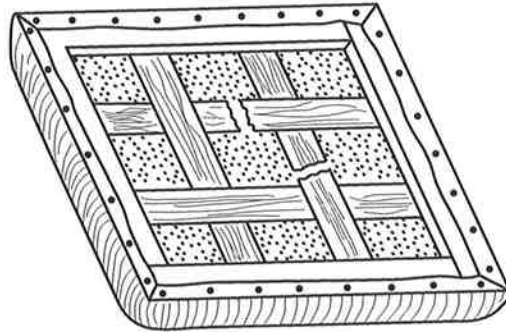


Figure 9. Defective chair seat

Explain clearly how the following should be done to replace the webbing and restore the chair seat:

- (i) The stripping of old material
 - (ii) The placing of new material
 - (iii) The re-covering of the seat **(6 marks)**
- (d)
- (i) Explain why webbing should be arranged in a laced formation. **(2 marks)**
 - (ii) Explain how the webbing should be stretched and tacked to the frame. **(2 marks)**

Total 20 marks

END OF TEST

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