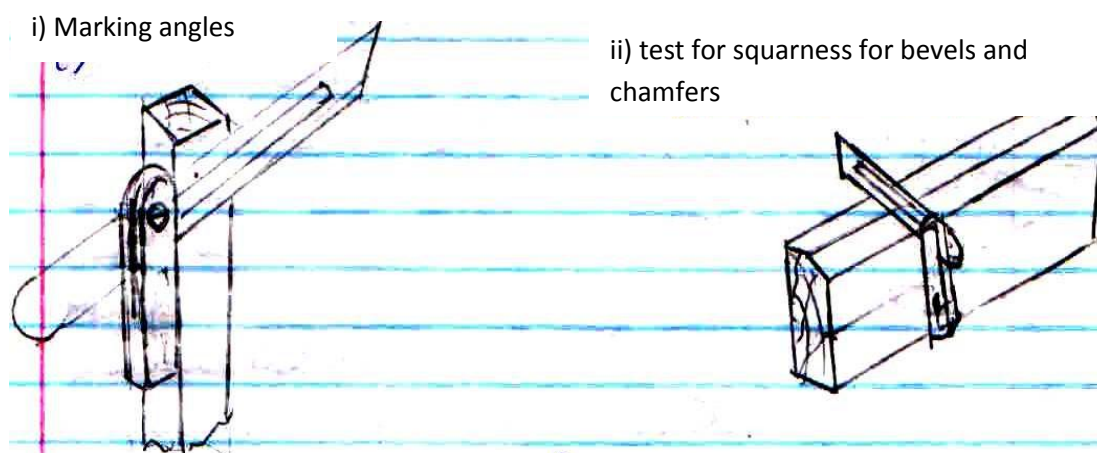


MAKUENI COUNTY CLUSTER PREPARATORY EXAMINATION 2016*Kenya Certificate of Secondary Education (K.C.S.E.)*

444/1
WOOD WORK
Paper 1
JULY/ AUGUST 2016
2½ hours

1. i) Safety precautions when grinding
- Wear goggles or eye shields when grinding
 - Don't use a cracked or chipped wheel of grinder
 - Provide good lighting (any 2× ½ =1mk)
- ii) Sharpening
- Cool the tool as you sharpen to harden the cutting edge
 - Maintain the sharpening angle
 - Use the entire surface of the oilstone when sharpening
 - Test sharpness of the cutting edges on a piece of paper or wood not hand. (Any 2× ½ =1mk)
2. a) Rules to be observed when using machines
- No adjustments must be made while the machine is running
 - Run the machine to full speed before starting to feed materials
 - When you turn off the machine wait until the motor stops. (Any 2× ½ =1mk)
- b) The length of cutting knives / blade (1×1=1mk)
- c) Uses of sliding level (2×1=2mks)



3. a. i) Board made from wood fibres
- Hardboard
 - Softboard (2×¼=½mk)
- ii) Board made from wood particles
- Particle board (1×½=½ mk)
- b) Order of plywood
- Number of veneers
 - Surface finish
 - Face veneer type
 - Norminal thickness
 - Sheet size (Any 4×½ =2marks)

c) Method of conversion

- Log size / diameter
- Type of wood
- Structured defects
- Timber use
- Type of sawing machine
- Proportion of heartwood to sapwood (Any $4 \times \frac{1}{2} = 2$ marks)

4.

- i) Countersinking is the act of enlarging clearance hole to receive a countersunk or raised head screw
Counter boring is the act of enlarging an already existing hole to accommodate wood screw head bolts. ($1\frac{1}{2} \times 2 = 3$ mks)
- ii) Paring is the act of cutting thin sizes of wood either across or along the grains of wood using a paring chisel while chopping is cutting across the grain to make an opening to a mortise to receive a tenon using a mortise chisel. ($1\frac{1}{2} \times 2 = 3$ mks)

5.

- a) Precautions to be observed when using hand saws
- Saw should not be used on timber with nails
 - Painted wood dulls the saw teeth
 - Do not use saw with broken handle
 - Make sure that the saw blade does not buckle or bend. (Any $4 \times \frac{1}{2} = 2$ marks)
- b) Metal for making jack plane – cast – iron ($1 \times 1 = 1$ mk)
- c) Advantages of metal plane over wooden planes
- Heavy in weight and will produce a good cut than wooden
 - Part of the plane are replaceable
 - Metal plane is more durable than wooden. ($2 \times 1 = 2$ mks)

6.

- a) Boring a hole using expansive bit
- The position of the hole is marked and centre punched
 - The work piece is secured in a vice or by use of cramps
 - The expansive bit is adjusted and fixed in the chunk of a ratchet brace
 - The hole is cut using varying pressure applied (Any $4 \times 1 = 4$ mks)
- b) Advantages and disadvantages of using paint (Any $2 \times 1 = 2$ mks)

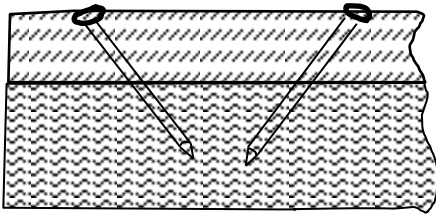
Advantages	Disadvantages
1. Hides defects	1. Does not expose timber texture
2. Gives a uniform colour	2. Does not give high class finish
3. Variety of colours	3. Not absorbed by timber cells and may peel off

- c) Apprenticeship training - Person bound by a written contract to serve an employer for a determined period of time for the purpose of learning the skill or occupation in which he or she is employed
Craft – training - A person acquires skills to be able to do practical job or work at high level of efficiency or can perform a manipulative skill to existing and consistent standard. ($2 \times 1 = 2$ mks)

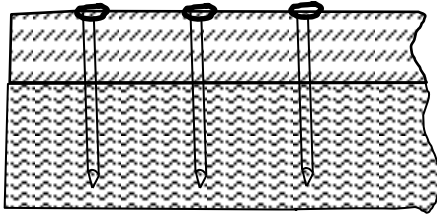
7.

- a) Iron monger used for the following :-
- i) Keeping door in closed position without locking - Ball catch
- ii) Pulling or pushing drawers - Knob , handle
- iii) Protecting mortice cut - striking plate ($3 \times 1 = 3$ mks)

- b)
- i) Dovetail nailing



- ii) Staggering nailing



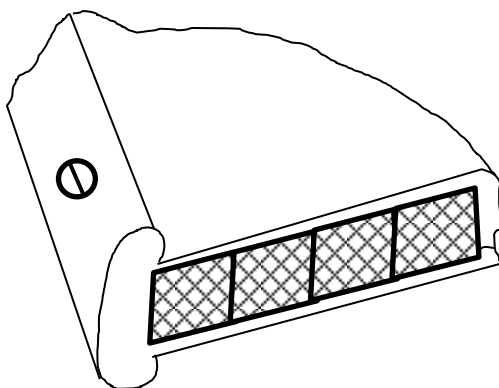
(2×1/2 = 1mark)

- 8.
- a) Abrasive paper parts
 - i) A - Abrasive grain
 - B - Backing
 - ii) Electro – coating method
- b) Natural abrasive grain
 - Flint
 - Garnet
 - Emery
- 9. Block board edge treatment
 - i) Alluminium moulding

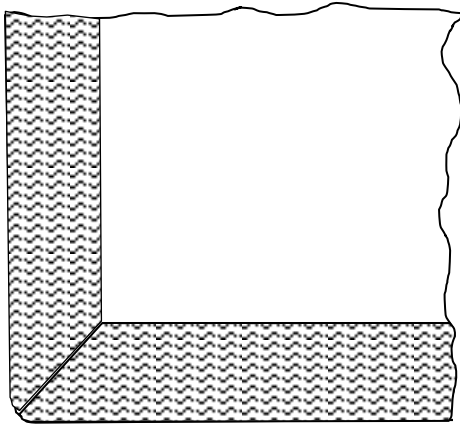
(2×1/2 = 1mark)

(1×1/2 = 1/2 mark)

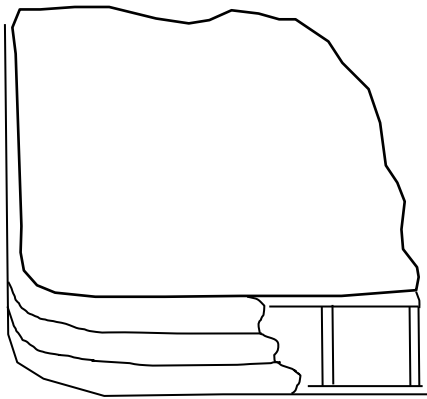
(Any 2×1/4 = 1/2mark)



ii) Solid moulding



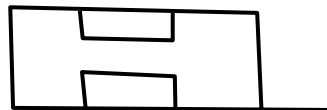
iii) Plastic moulding



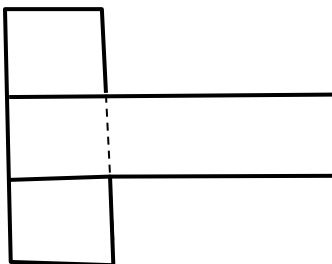
(Any 2×1=2mks)

10.

F.E



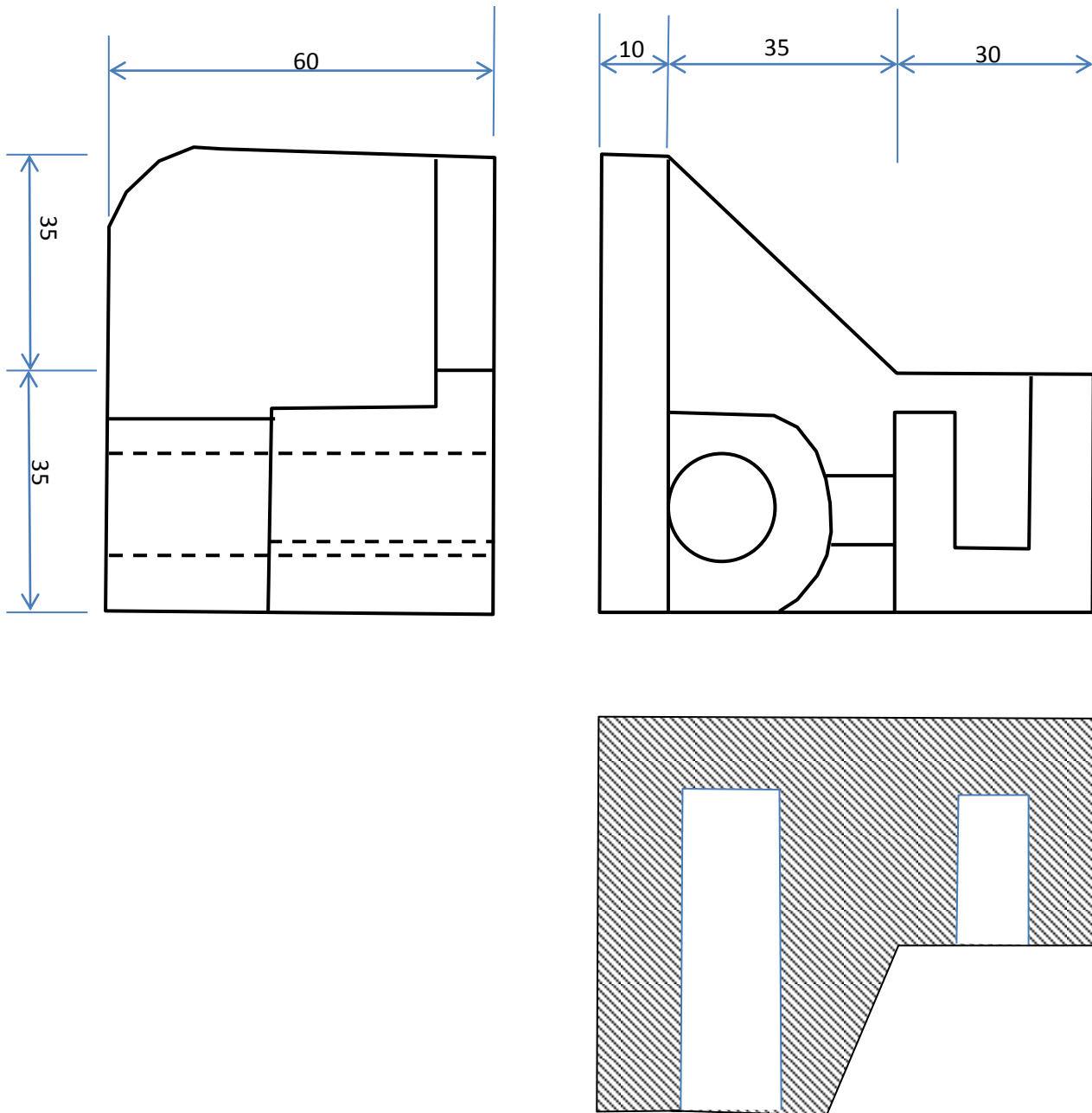
E.E



PLAIN

(3 faces × 1 = 3mks)

11.



Correct interpretation - 1 – 1 mk

Dimensioning $6 \times \frac{1}{2} = 3$ mks

Hidden details - 2 = 2 mks

Correct scale - 1 = 1mk

Construction - 1 = 1mk

Faces $12 \times \frac{1}{2} = 6$ mks

Neatness $1 \times 1 = 1$ mk

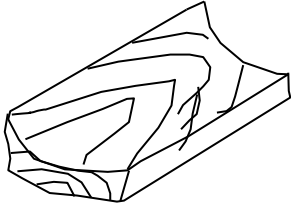
15 mks

12.

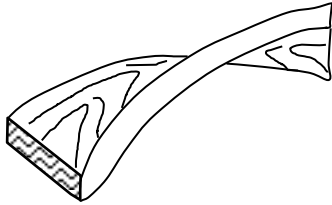
a) Procedure of manufacturing chipboard

- Waste wood eg. Shavings , wood blocks, forest –thinning are broken down into small particles
- The particles are dried and mixed with glue (synthetic resin and a hardener)
- A preservative and wax emulsion are also added to increase moisture resistance

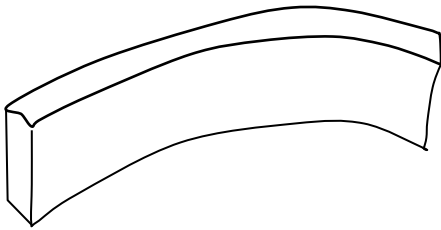
- The mixture is pressed under a forming machine and allowed to dry
 - The boards are cut to standard sizes and sanded both sides.
- b) Timber defects
- i) Cupping is the formation of curvature across the face of the board.



- ii) Twisting is the spiral formation of the board along its length

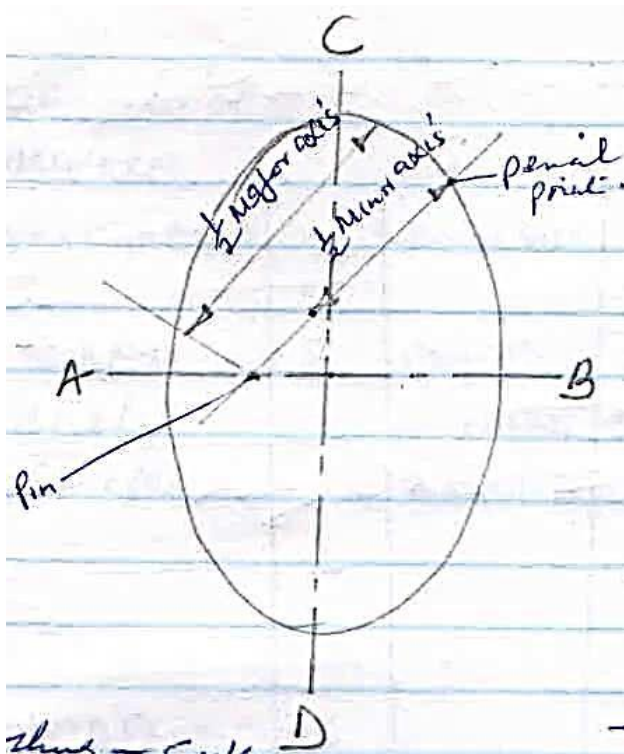


- iii) Formation of a curvature along the length



(Any 3×3= 9 mks)

13.
a)



AB = Minor axis

CD = Major axis

- Use a string to act as a trammel and mark on the string distance equal to $\frac{1}{2}$ the minor axis
- Measure and mark another distance equal to $\frac{1}{2}$ the Major axis
- Move the string to various position so that mark C is always on minor axis and mark A is always on major axis
- Mark various positions on the paper and make a fair curve through all the points to obtain the elliptical hole.

Sketching - 5 mks

Labeling - $1\frac{1}{2}$ mks

Procedure - 5mks

$11\frac{1}{2}$ mks

b) Application oil paint

- Surface prepared by filling all gaps and sanded
- Under coat is prepared and applied evenly on the surface / two coats atleast
- Other finishing coats are applied until desired degree of shininess is achieved

(Any $3 \times 1\frac{1}{2} = 4\frac{1}{2}$ mks)

14. Cutting list

BOOKSHELF

Item No.	Description	No. Off	Sewn sizes	Finished sizes	Material	Cost per unit
A	SIDES	2	820 × 150 × 25	800 × 145 × 20	Camphor	$\frac{1640 \times 300}{1000} = 492$
B	SHELF	3	1200 × 150 × 25	1180 × 145 × 20	Camphor	$\frac{3600 \times 300}{1000} = 1080$
C	BACK	1	1210 × 810 × 3	1200 × 800 × 3	Threeply	$\frac{1210 \times 810}{2400 \times 1200} \times 600$ 0.3403×600 = shs. 204
	WOODSCREWS	15				$\frac{15}{144} \times 432$ = 44.9

Title - 1

Format – 6

Insert - 5

Approximate cost – 3

15 mks

15.

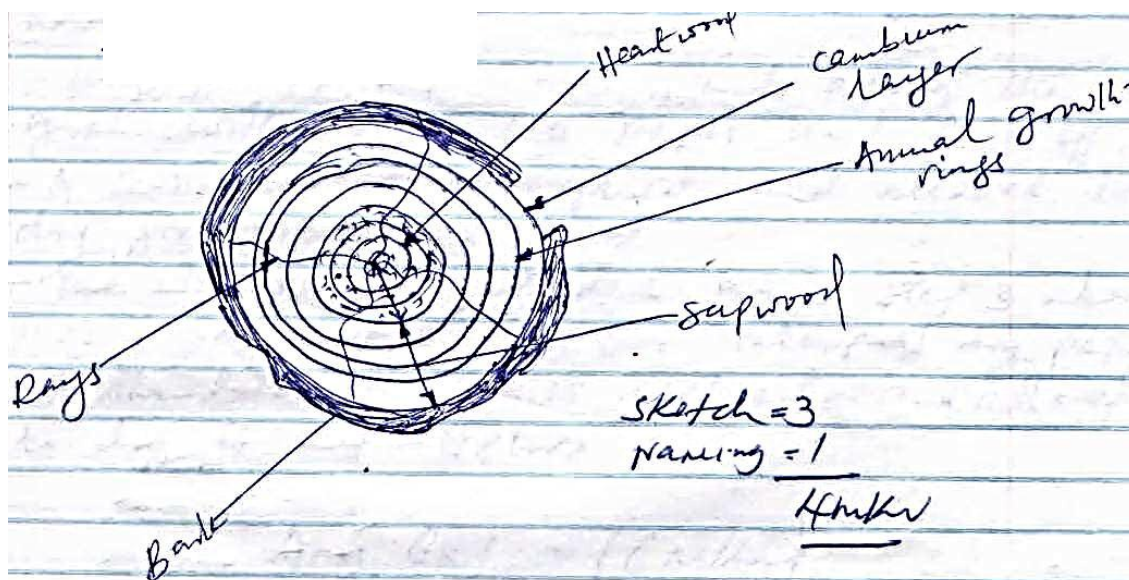
a) Conversion definition

- Sawing of logs of wood to marketable sizes

(1×1=1mk)

b) Cross – section of a tree trunk

Showing parts



Sketch = 3 mks

Naming = 1mk

4 mks

c) Function of parts

Bark – Protect the inner tree against:

- Extreme temperature changes
- Insects, fungi and animal attack
- Moisture evaporation from the tree

Cambium layer – Develops cells that form bark, promotes tree growth

Heartwood – Storage for waste products, provides support for the tree

Sap wood – conveys water and mineral salts from the roots to the leaves.

(Any 4× 1= 4mks)

d) Procedure of applying a varnish

- Prepare surface seal grain with a thin coat of shellac if required
- Apply first coat of thinned to the correct consistency using long strokes of the brush along the grain
- Dry for 18 – 24 hours, sand along the grain with no. of glass paper and dust – off.
- A second coat is applied and allowed to dry for 24 to 48 hours
- The work piece is sanded as in step 3 above using sand paper no. 400 water proof dry paper.
- A third coat is applied and allowed to dry for 24 to 48 hours

(Any 6×1=6mks)