

3.2 WOOD WORK (444)

The 2021 KCSE examinations for wood work consisted of two papers namely Paper 1 (theory) and Paper 2 (Practical Project). The theory was worth 60% while practical was worth 40% of the final mark. Both papers followed the usual setting format as those of the previous years.

3.2.1 Candidates General Performance

The table below shows candidates' overall performance for the six-year period, from 2016 to 2021.

Table 8: Candidates overall performance in the years 2016, 2017, 2018, 2019, 2020 and 2021

Year	Paper	Candidature	Maximum Score	Mean Score	Standard Deviation	
2016	Overall	276	60	25.37	5.76	
	1		40			
	2		100			63.22
2017	Overall	268	60	38.74	8.84	
	1		40			25.85
	2		100			64.58
2018	Overall	318	60	34.93	11.95	
	1		40			23.36
	2		100			58.21
2019	Overall	389	60	43.61	9.20	
	1		40			29.03
	2		100			72.49
2020	Overall	530	60	40.75	8.86	
	1		40			27.21
	2		100			67.94
2021	Overall	581	60	43.02	10.05	
	1		40			28.75
	2		100			71.77

The following observations can be made from the above table:

- (i) The candidature increased from 530 in 2020 to 581 in 2021.
- (ii) The mean score improved from 67.94 in 2020 to 71.77 in 2021.
- (iii) The standard deviation also improved from 12.14 in 2020 to 14.11 in 2021

3.2.2 Woodwork Paper 1 (444/1)

The questions which were reported to have been poorly responded to have been analyzed with a view to pointing out candidates' weaknesses and propose suggestions on some remedial measures that need to be taken in order to improve performance in future. The questions for discussions include question 3, 6(a), 7, 11, 13(b) and 15(b).

Question 3

Figure 1 shows a vernier calliper reading.

(2 marks)

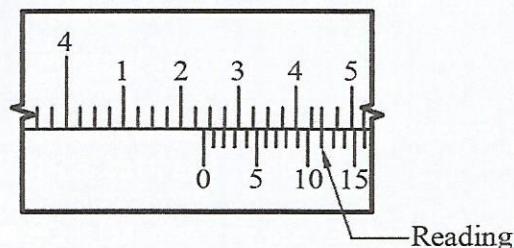


Figure 1

Determine the value of the reading.

Weaknesses

Most candidates could not determine the value of the reading on the vernier calliper.

Advice to Teachers

Teachers should teach thoroughly the topic of "Measuring Instruments" and explain explicitly how to take readings and also give students the opportunity to use the instruments in taking readings.

Expected response

Vernier Caliper reading

Steel rule reading: 4 main units - $4 \times 10 = 40.00 \text{ mm } \frac{1}{2}$
 2 sub units $2 = 2.00 \text{ mm } \frac{1}{2}$
 1 intermediate $1 \times 0.25 = 0.25 \text{ mm } \frac{1}{2}$

Vernier scale reading: 11 units $= 0.11 \frac{1}{2}$

Total = 42.36 mm
 $= 4.236 \text{ cm}$

Question 6 (a)

(a) Sketch and label a try square.

(2 marks)

Weaknesses

Most candidates could not sketch and label a try square

Advice to Teachers

Teachers should teach and explain to the students the different types of tools used in woodwork ask them to sketch and label their parts.

Expected response

Try square

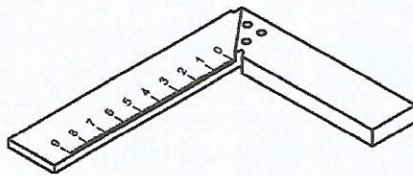
**Question 7**

Figure 2 shows the cutting edge of a chisel.

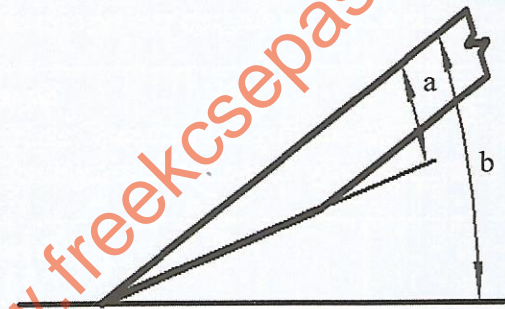


Figure 2

(a) Name the angles labelled a and b.

(1 mark)

(b) Give the recommended value for each of the angles in 7(a).

(2 marks)

Weaknesses

Most candidates could not differentiate between the grinding angle and sharpening angle

Advice to Teachers

Teachers to teach more and put emphasis on the grinding and sharpening angle of a chisel.

Expected response

- (i) a - Grinding angle
b - Sharpening angle
- (ii) a - 25°
b - 30°

Question 11

Figure 3 shows a machine drawn in isometric projection.

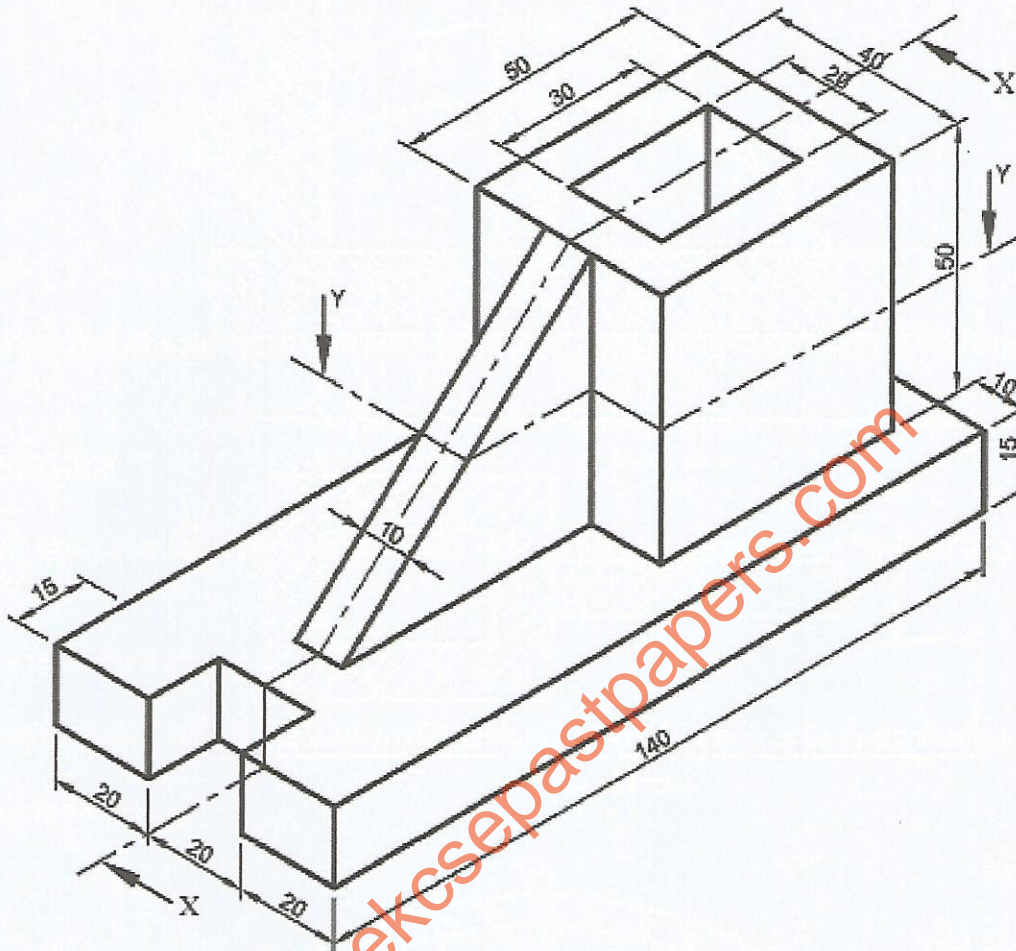


Figure 3

Draw the following views of the component **Full Size** in first angle projection: (15 marks)

- Sectional front elevation along the cutting plane X-X.
- Sectional plan along the cutting plane Y-Y.

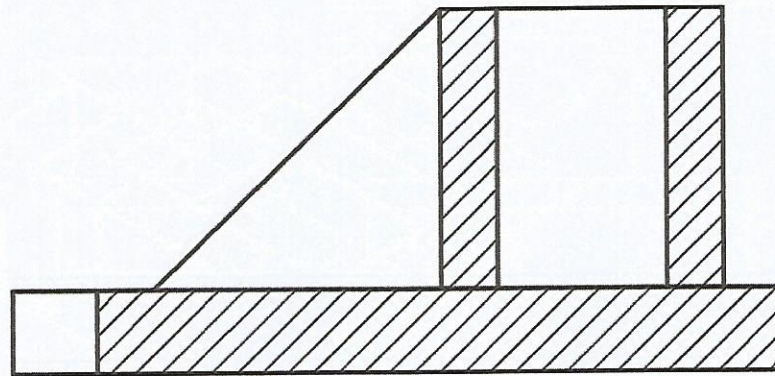
Weaknesses

Most candidates could not interpret the drawing given and draw the solution in first angle orthographic projection

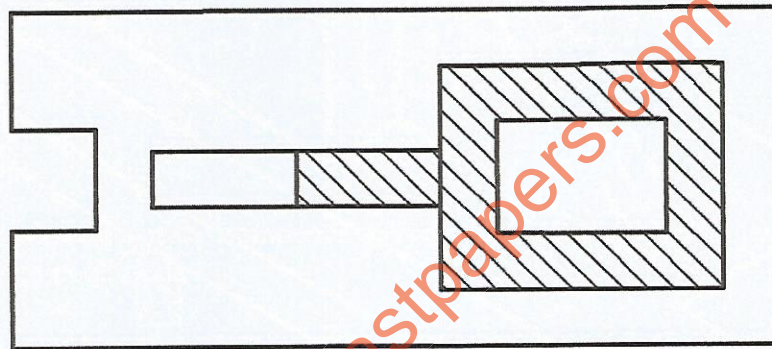
Advice to Teachers

Teachers to explain clearly to the students how to convert drawings from isometric to orthographic projection.

Expected response



SECTION X-X



SECTION Y-Y

Section X-X

Correct scale used = 2

Section x-x

- Correct section (2 parts x1) = 2
- Hatching (2 parts x1) = 2

Section y-y

- Correct section (2 parts x1) = 2
- Hatching (2 parts x1) = 2

Accuracy = 2

Line work = 1

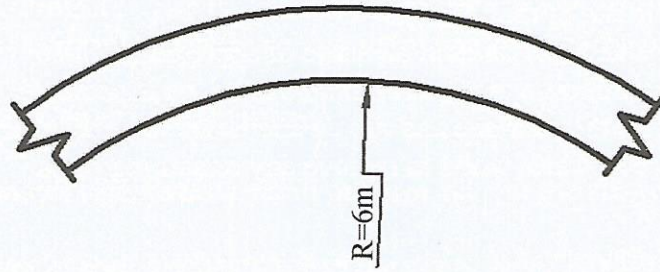
Neatness = 2

= 15 marks

Accept if the solution is drawn with a through hole.

Question 13(b)

(b) **Figure 4** shows the plan of a curved timber piece.



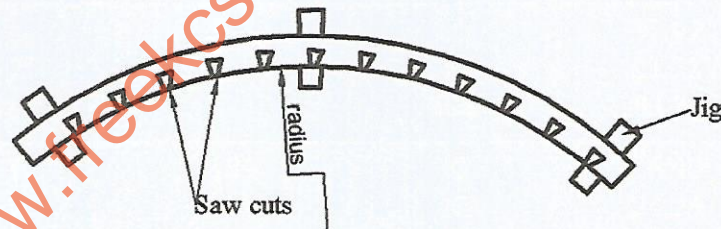
With the aid of a sketch, outline the procedure of kerf bending to produce the curved piece. (12 marks)

Weaknesses

Most candidates seemed not to have any idea on the procedure of kerf bending to produce the curved piece.

Advice to Teachers

Teachers should expose students to the methods of bending timber in order to produce curved pieces

Expected response**Question 15 (b)**

Outline the procedure of sharpening a chisel using an oil stone.

Weaknesses

Most candidates seemed not to know the procedure of sharpening a chisel using an oil stone.

Advice to Teachers

Teachers should teach more on the tools used in woodwork and explain to the students how to maintain the tools.

Expected response

Procedure of sharpening a chisel using an oil stone:

- Apply enough oil onto the surface of the oil stone
- Hold the chisel comfortably with both hands at an angle of approximately 30°
- Move the chisel back and forth in even motions until a honed edge is obtained.
- Reverse the cutter to lay flat on the oil stone and rub up and down to remove any burr.
- Draw the cutter across a piece of waste wood to remove any remaining burrs

3.2.3 Woodwork Paper 2 (444/2)

Like in the previous years, the council designed a suitable project for this level together with a comprehensive marking scheme. The subject teacher used the working drawings to supervise the fabrication of the project and the scoring guide to mark the candidate's projects. The marks were then uploaded onto the KNEC portal within the specified time as per the instructions given after revision due to the Covid 2019 pandemic.

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