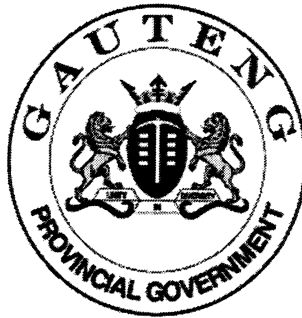


**SENIOR CERTIFICATE EXAMINATION
SENIORSERTIFIKAAT-EKSAMEN**



**OCTOBER / NOVEMBER
OKTOBER / NOVEMBER**

2004

WOODWORK

HOUTWERK

***(Second Paper: Theory)
(Tweede Vraestel: Teorie)***

SG

720-2/2

**17 pages
17 bladsye**

WOODWORK SG: Paper 2
Theory



720 2 2

SG

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GAUTENGSE DEPARTEMENT VAN ONDERWYS
SENIORSERTIFIKAAT- EKSAMEN

HOUTWERK SG
(Tweede Vraestel: Teorie)

TYD: 2 uur

PUNTE: 100

INSTRUKSIES:

- Beantwoord AL die vrae.
 - Sketse mag gebruik word om jou antwoorde toe te lig.
 - Begin elke vraag op 'n nuwe bladsy.
 - Beantwoord Vraag 1 op die **antwoordblad** aan die **binnekant van die omslag** van jou **antwoordboek**.
-
-

VRAAG 1A
MEERKEUSEVRAE

Die meerkeusevrae wat volg, dek die hele sillabus. Bestudeer die volgende stellings en vrae noukeurig en kies in elke geval die mees korrekte antwoord uit A, B, C of D. Toon jou antwoord aan deur 'n kruisie (X) oor die toepaslike letter op die antwoordblad aan die **binnekant van die omslag** van jou **antwoordboek** te trek.

- 1.1 Omvorming van timmerhout verwys na hout wat _____ .
- A. vanaf die woud na die saagmeul beweeg word
 - B. vanaf 'n sagtehout na 'n hardehout verander as gevolg van te vinnige droging
 - C. gekleur word om 'n ander houtsoort na te boots
 - D. in bruikbare houtgroottes opgesaag word
- 1.2 Die graderingsimbool vir Suid-Afrikaanse skoongraad naaldhout is _____ .
- A. M4
 - B. MG
 - C. XX
 - D. F.C
- 1.3 Die graderingsimbool vir sterktegegradeerde naaldhout vir konstruksiedoeleindes is _____ .
- A. M4
 - B. MG
 - C. XX
 - D. F.C

GAUTENG DEPARTMENT OF EDUCATION
SENIOR CERTIFICATE EXAMINATION

WOODWORK SG
(Second Paper: Theory)

TIME: 2 hours

MARKS: 100

INSTRUCTIONS:

- Answer ALL the questions.
 - Sketches may be used to illustrate your answers.
 - Start each question on a new page.
 - Answer Question 1 on the **answer sheet** on the **inside cover** of your **answer book**.
-
-

QUESTION 1
MULTIPLE-CHOICE QUESTIONS

The multiple-choice questions that follow cover the full syllabus. Study the statements and questions below carefully and, in each case, choose the most correct answer from A, B, C and D. Indicate the most correct answer by making a cross (X) over the appropriate letter on the **answer sheet** on the **inside cover** of your **answer book**.

- 1.1 Converted timber refers to wood that has been _____ .
- A. moved from the forest to the sawmill
 - B. changed from softwood into a hardwood by too rapid drying
 - C. stained to imitate another type of timber
 - D. sawn into usable sections
- 1.2 Clean grade SA-Pine will use the following mark:
- A. M4
 - B. MG
 - C. XX
 - D. F.C
- 1.3 Strength-graded softwood for general construction purposes will use the following mark:
- A. M4
 - B. MG
 - C. XX
 - D. F.C

- 1.4 Hout in 'n bemarkbare vorm van 150 mm breed en minder as 50 mm dik, word 'n _____ genoem.
- A. balk
 - B. plank
 - C. kleinhout
 - D. latplank
- 1.5 Watter houtsoort laat sagtestaalskroewe roes?
- A. Japannese eik
 - B. Geelhout
 - C. Pau marfin
 - D. Imbuia
- 1.6 Om die grootte van 'n skroewedraaier te bepaal, kyk jy na die _____ .
- A. gewig van die lem
 - B. dikte van die lem
 - C. wydte van die punt
 - D. grootte van die handvatsel
- 1.7 Die dwarspen van die Warrington-skrynwerkershamer _____ .
- A. gee 'n gebalanseerde voorkoms
 - B. verhoog die massa van die kop
 - C. word gebruik om spykers uit te trek
 - D. word gebruik om paneelspykers mee in te kap
- 1.8 'n Beitel se grootte word deur die _____ bepaal.
- A. lem se massa
 - B. aantal noodringe op die hef
 - C. lengte van die lem
 - D. lem se breedte
- 1.9 Om die braam van 'n geslypte beitellem te verwyder, gebruik _____ .
- A. skuurpapier
 - B. 'n vyl
 - C. 'n amarilwiel
 - D. 'n oliesteen
- 1.10 Die bankskaaf (voorloperskaaf) se dieptesnit word verstel met _____ .
- A. die Y-stelarm
 - B. die stelskroef
 - C. die veerwig
 - D. die keerbeitel

- 1.4 A marketable form of timber which is more than 150 mm wide and less than 50 mm thick, is called a _____.
- A. beam
 - B. board
 - C. scanting
 - D. deal
- 1.5 This timber corrodes mild steel screws:
- A. Japanese oak
 - B. Yellowwood
 - C. Pau marfin
 - D. Imbuia
- 1.6 The size of the screwdriver is determined by the _____.
- A. weight of the blade
 - B. thickness of the blade
 - C. size of the screwdriver point
 - D. size of the handle
- 1.7 The cross-pene of the Warrington cross-pene hammer _____.
- A. gives a balanced appearance
 - B. increases the weight of the head
 - C. is used to remove nails
 - D. is used to drive panel pins
- 1.8 The size of a chisel is determined by the _____.
- A. mass of the blade
 - B. number of ferrules on the handle
 - C. length of the blade
 - D. width of the blade
- 1.9 To remove the burr or wire edge from a chisel, use _____.
- A. sandpaper
 - B. a file
 - C. a grindstone
 - D. an oilstone
- 1.10 To set the depth of cut on a bench plane (jack plane), adjust _____.
- A. the "Y" adjustment lever
 - B. the adjustment nut
 - C. the lever cap
 - D. the cap iron

- 1.11 Om voeë vir 'n laai akkuraat te saag, gebruik jy 'n _____ .
- A. paneelsaag
 - B. rugsaag
 - C. dwarssaag
 - D. spansaag
- 1.12 Om 'n beginpunt vir 'n klein skroefie te maak, gebruik jy 'n _____ .
- A. spyker
 - B. houtels
 - C. senterpons
 - D. spykerpons
- 1.13 Indien twee stukkies hout aanmekaar geskroef word, watter een van die volgende gereedskapstukke is **nie** nodig **nie**?
- A. 'n Houtels
 - B. 'n Omslag
 - C. 'n Knyptang
 - D. 'n Spiraalboor
- 1.14 Die deursnee van die _____ bepaal die grootte van die bandsaag.
- A. lem
 - B. elektriese motor
 - C. tafelblad
 - D. dryfwiel
- 1.15 Wanneer die skraaptegniek by die houtdraaibank gebruik word, moet die beitelrus so verstel word:
- A. 3 mm bokant die senter van die werkstuk
 - B. Beitelrus word nie gebruik nie
 - C. Presies op die senterlyn van die werkstuk
 - D. 3 mm onder die senter van die werkstuk
- 1.16 Die volgende masjien word verstel terwyl dit aangeskakel is:
- A. Bandsaag
 - B. Draaibank
 - C. Sirkelsaag
 - D. Band- en skyfskuurmasjien
- 1.17 'n Defek op hout wat deur masjiene veroorsaak word, is _____ .
- A. brandmerke
 - B. golftrekking
 - C. spiraaldraad
 - D. kwaste

- 1.11 To saw joints accurately for a drawer use a _____ .
- A. panel saw
 - B. tenon saw
 - C. cross-cut saw
 - D. bow saw
- 1.12 To make a hole to turn in a small screw, use a _____ .
- A. nail
 - B. bradawl
 - C. centre punch
 - D. nail punch
- 1.13 When two pieces of wood are to be screwed together, which one of the following would **not** be needed?
- A. A bradawl
 - B. A brace
 - C. A pair of pincers
 - D. A twist bit
- 1.14 The diameter of the _____ determines the size of a bandsaw.
- A. blade
 - B. electric motor
 - C. table top
 - D. drive wheel
- 1.15 When using the scraping technique on the woodturning lathe, set the tool rest:
- A. 3 mm above the centre of the work piece
 - B. Tool rest is not used
 - C. Precisely on the centre point of the work piece
 - D. 3 mm under the centre of the work piece
- 1.16 This machine has to run in order to adjust it
- A. Bandsaw
 - B. Woodturning lathe
 - C. Circular saw
 - D. Belt and disk sanding machine
- 1.17 A defect in timber caused by machines is _____ .
- A. burning marks
 - B. waving
 - C. spiral grain
 - D. knots

1.18 Dié lymsoort word algemeen op hout gebruik.

- A. Epoksielym
- B. Kaseïnyl
- C. Kontaklym
- D. Polivinielasetaat-emulsielym

1.19 Watter voeg is die geskikste vir 'n boekrak se rakke?

- A. Inlaatvoeg
- B. Toomvoeg
- C. Ratvoeg
- D. Verstekvoeg

1.20 Watter een van die volgende is 'n siekte wat by hout voorkom?

- A. Dwarsdradigheid
- B. Kernbars
- C. Kambiumswam
- D. Draaitrek

(20)

VRAAG 1B

1.2 **Tabel 1.2** gee in elke geval letters, nommers, woorde en/of frases. In elke geval deel drie van die vier items 'n gemeenskaplike kenmerk en 'n vierde het niks in gemeen nie. Kies die woord of frase wat **nie** verband hou nie. Skryf die vraagnommers (1.2.1 – 1.2.10) onder mekaar neer en slegs die antwoord daarnaas.

(10)

	A	B	C	D
1.2.1	Kiaat	Imbuia	Stinkhout	Tambotie
1.2.2	Geelhout	Patuladen	Eliottiden	Iroko
1.2.3	Hout nie sterk genoeg	Hout gereed vir uitvoer	Swart-kruishout	Hout is gebuig
1.2.4	Meetstok	Winkelhaak	Buitepasser	Enkelpenkruishout
1.2.5	Soetskaaf	Reiskaaf	Rolskaaf	Voorloperskaaf
1.2.6	Bolpenhamer	Dwarspenhamer	Blokhamer	Klouhamer
1.2.7	Rugsaag	Verstekbak	Saagplank	Kloofsaag
1.2.8	Laaï-tap-en-gatvoeg	Laaï-swaelstertvoeg	Lipvoeg	Laaikonstruksie
1.2.9	Houtpenlas	T-voeg	F-voeg	Tong-en-groefvoeg
1.2.10	Waspolitoer	Oliepolitoer	Vernis	Wateroplossing van metaalsoute

Tabel 1.2

[30]

b.o.

1.18 This glue is mostly used on wood

- A. Epoxy glue
- B. Casein glue
- C. Contact glue
- D. Polyvinyl acetate emulsion glue

1.19 The most suitable joint for the shelves of a bookshelf:

- A. Housing joint
- B. Bridle joint
- C. Box joint
- D. Mitre joint

1.20 Which one of the following is a disease that appears in wood?

- A. Cross grain
- B. Heart shake
- C. Cambium fungus
- D. Twisting

(20)

QUESTION 1B

1.2 **Table 1.2** sets out letters, numbers, words and/or phrases. Three in each subquestion have a common factor; one is unrelated. Choose the word or phrase that is **unrelated** to the other three and write the question numbers (1.2.1 – 1.2.10) under one another together with the answer.

(10)

	A	B	C	D
1.2.1	Kiaat	Imbuia	Stinkwood	Tamboti
1.2.2	Yellowwood	Patula pine	Eliotti pine	Iroko
1.2.3	Wood not strong enough	Wood ready for export	Black cross timber	Wood is bent
1.2.4	Ruler	Try square	Outside calipers	Marking gauge
1.2.5	Smoothing plane	Trying plane	Jointer	Jack plane
1.2.6	Ball pene hammer	Cross-pene hammer	Carpenter's mallet	Claw hammer
1.2.7	Tenon saw	Mitre box	Bench hook	Ripsaw
1.2.8	Drawer mortice and tenon joint	Drawer dovetail joint	Tongue and groove joint	Drawer construction
1.2.9	Dowelled joint	T-joint	F-joint	Tongue and groove joint
1.2.10	Wax polish	Oil polish	Varnish	Aqueous solutions of metallic salts

Table 1.2

[30]

VRAAG 2

HOUTSOORTE, OPSAAGMETODES, DEFEKTE EN DIE GRADERING VAN HOUT

2.1 **Tabel 2.1** gee verskillende inligting oor houtsoorte. Skryf vraagnommer (2.1) en die letters **A** tot **P** onder mekaar in jou antwoordboek neer. Lees die rye vertikaal (van bo na onder, kolom per kolom) en gebruik die gegewe inligting om die antwoorde te soek. Kies die mees relevante feite en skryf slegs die toepaslike nommer langs die letters **A** tot **P** neer. Byvoorbeeld, A – 1, B – 2, ens.

	Natuurlike groeiplek:	Kleur van kernhout:	Reuk:	Tekstuur:	Bevat:	Bewerkings- eienskappe:
	1. Zambië 2. Knysna (SA) 3. Uganda 4. Brittanje 5. Mpumalanga 6. Brasilië 7. Japan 8. VSA 9. Suid-Amerika 10. Tanzanië 11. Namibië	1. Wissel van strooi, grys, bruin tot byna swart 2. Ligbruin 3. Donkerbruin 4. Sjokoladebruin 5. Goudbruin 6. Geelbruin tot strooi 7. Rooierig 8. Rooibruin 9. Ligrooi 10. Donkerrooi 11. Geel	1. Seder 2. Spesery 3. Hars 4, Soet 5. Onaangenaam	1. Fyn 2. Middelmattig 3. Grof 4. Egalig	1. Olie 2. Hars 3. Gallusuur 4. Soutkristalle	1. Bewerk baie maklik 2. Skeur in 3. Greinvulling nodig 4. Hardheidsverskille bemoelijk afwerking
Beuk				J		
Geelhout	A					
Imbuia			G			N
Iroko	B					
Japanese eik		D			L	
Kiaat				K		O
Oregon den			H			
Pau Marfin		E				
S.A. den	C					P
Sapele mahonie			I			
Stinkhout		F				
Tambotie					M	

Tabel 2.1

(16)

QUESTION 2
TIMBERS, CONVERSION METHODS, DEFECTS AND GRADING

2.1 **Table 2.1** shows various information of timber. Write down question number (2.1) and the letters **A** to **P** below one another. Read the rows vertically (from top to bottom, column by column) and use the information provided to find the answers. Write only the numbers of the relevant facts next to the letters **A** to **P**. For example, A – 1, B – 2, etc.

	Distribution:	Colour of heartwood:	Odour:	Texture:	Contains:	Working properties:
	1. Zambia 2. Knysna (SA) 3. Uganda 4. Britain 5. Mpumalanga 6. Brazil 7. Japan 8. USA 9. South America 10. Tanzania 11. Namibia	1. Varies from straw, grey, brown to almost black 2. Light brown 3. Dark brown 4. Chocolate brown 5. Golden brown 6. Yellow brown to straw 7. Reddish 8. Reddish brown 9. Light red 10. Dark red 11. Yellow	1. Cedar 2. Spicy 3. Resin 4. Sweet 5. Unpleasant	1. Fine 2. Medium 3. Rough 4. Even	1. Oil 2. Resin 3. Gallic acid 4. Salt crystals	1. Works very easily 2. Tearing 3. Grainfilling necessary 4. Difference in hardness makes finishing difficult
Beech				J		
Yellow-wood	A					
Imbuia			G			N
Iroko	B					
Japanese Oak		D			L	
Kiaat				K		O
Oregon pine			H			
Pau Marfin		E				
S.A. pine	C					P
Sapele mahogany			I			
Stinkwood		F				
Tamboti					M	

Table 2.1

(16)

2.2 'n Kliënt soek 'n wiegstoel met gebuigde komponente, gemaak van 'n ligkleurige houtsoort.

2.2.1 Watter houtsoort uit die volgende groep sal geskik wees vir hierdie taak?

- a) Geelhout
 - b) Imbuia
 - c) Beuk
 - d) Kiaat
- (1)

2.2.2 Wat is die kleur van hierdie houtsoort se kernhout? (1)

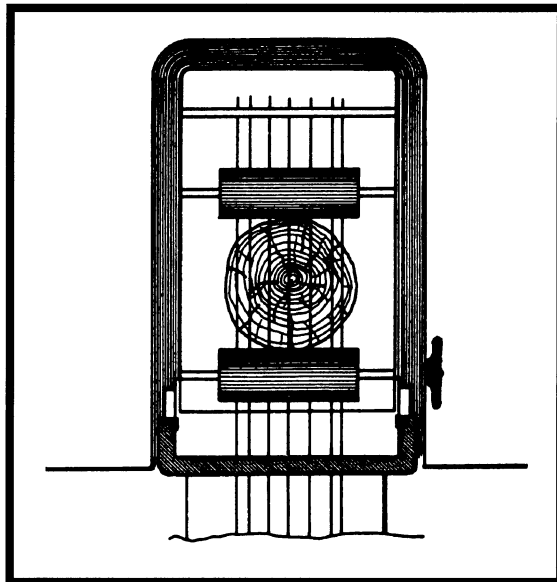
2.2.3 Watter proses word gebruik om die planke te buig? (1)

2.2.4 Watter een van die volgende planke sal geskik wees om gebuig te word?

- a) Radiaal gesaagde planke
 - b) Tangensiaal gesaagde planke
- (1)

2.2.5 Watter opsaagmetode word gebruik om hierdie planke te lewer? (1)

2.3 **Figuur 2.3** toon 'n skets van 'n raamsaag wat vir die omvorming van blokke gebruik word:



Figuur. 2.3

2.3.1 Noem 'n nadeel van die saag. (1)

2.3.2 Noem DRIE voordele wat die saag het teenoor 'n bandsaag. (3)

2.2 A client wants a rocking chair with bended components made of a timber with a light colour.

2.2.1 Which one of the following timbers will be suitable for this task?

- a) Yellowwood
- b) Imbuia
- c) Beech
- d) Kiaat (1)

2.2.2 What is the colour of the heartwood of this timber? (1)

2.2.3 Which process will be used to bend boards of this timber? (1)

2.2.4 Which one of the following boards will be suitable to bend?

- a) Radial sawn boards
- b) Tangential sawn boards (1)

2.2.5 Which method of conversion will deliver these boards? (1)

2.3 **Figure 2.3** shows a sketch of a saw which is used for the conversion of logs:

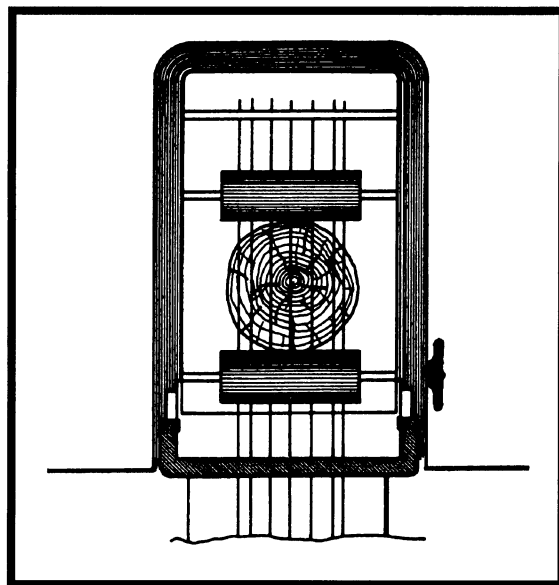
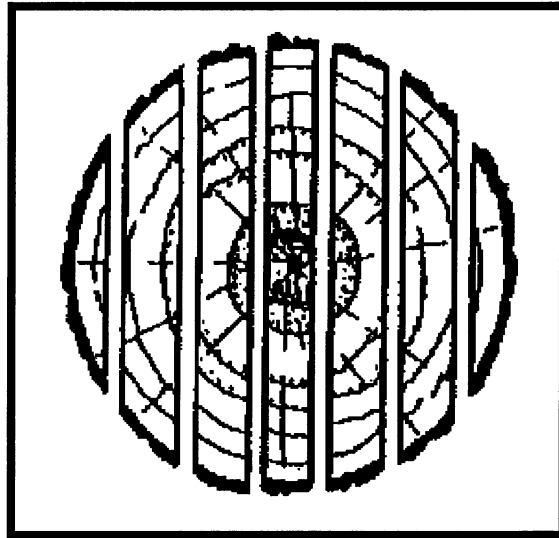


Figure 2.3

2.3.1 Give a disadvantage of the saw. (1)

2.3.2 Name THREE advantages of this saw over a bandsaw. (3)

2.4 **Figuur 2.4** toon 'n skets van 'n opsaagmetode:



Figuur 2.4

2.4.1 Gee die naam van die metode. (1)

2.4.2 Hoekom trek planke wat nie die kernhout insluit nie, makliker krom? (1)

2.4.3 Waarom ontstaan wankante met hierdie metode? (1)

2.4.4 Gee TWEE redes waarom die meeste timmerhout volgens dié metode opgesaag word. (2)

2.4.5 Waarom word eikehout **nie** volgens die metode opgesaag nie? (1)

2.4.6 Waarom ontstaan oppervlakbarsies maklik na omvorming? (1)

2.5 Beantwoord die volgende vrae oor defekte wat by hout voorkom:

2.5.1 Wat is die oorsaak van 'n plank wat boogtrek? (1)

2.5.2 Teken 'n plank wat draaitrek. (1)

2.5.3 Noem die naam van 'n inheemse boomsoort wat bekend is vir kernverrotting. (1)

2.5.4 Hoekom kom diep barste meestal aan die kopkante van hout voor? (1)

2.5.5 Waarom word kwaste in planke as 'n defek beskou? (1)

2.6 Konstruksiehout mag nie verkoop word indien dit nie met die SABS-merk gemerk is nie. Watter versekering bied die SABS-merk aan die verbruiker? (Noem DRIE punte van belang.) (3)

[40]

2.4 Figure 2.4 shows a sketch of a method of conversion:

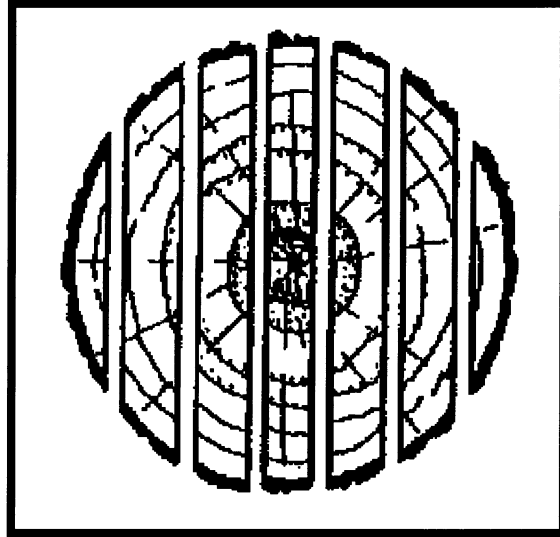


Figure 2.4

- 2.4.1 Give the name of the method. (1)
- 2.4.2 Why do boards that do not include heartwood, warp more readily? (1)
- 2.4.3 Why do waney edges occur with this method? (1)
- 2.4.4 State two reasons why this method is used to convert most timbers. (2)
- 2.4.5 Why is this method not used to convert Oak? (1)
- 2.4.6 Why do surface cracks occur easily after conversion? (1)
- 2.5 Answer the following questions concerning defects that occur with timber:
- 2.5.1 What is the cause of a board that is bowing? (1)
- 2.5.2 Sketch a board that is twisting. (1)
- 2.5.3 Give the name of an indigenous timber that is known for getting heart rot. (1)
- 2.5.4 Why do deep shakes mostly occur on the ends of timber? (1)
- 2.5.5 Why are knots in boards regarded as a defect? (1)
- 2.6 Structural softwood should not be sold without the SABS mark. What assurance does the SABS mark give the consumer? (State THREE aspects of grading.) (3)

[40]

**VRAAG 3
HAND- EN MASJIENGEREEDSKAP**

- 3.1 **Tabel 3.1** toon die werkstappe en/of prosesse wat uitgevoer moet word om 'n rowwe plank na 'n mate van 1 100 mm x 200 mm x 25 mm te verwerk. Skryf die letters **1** tot **16** onder mekaar neer en daarnaas die korrekte meet-, merk- en/of toetsgereedskap, saag en/of skaaf en/of hulpmiddel wat gebruik word om die genoemde prosesse uit te voer.

Werkstap/proses	Meet-, merk-, toetsgereedskap	Handsaag/ handskaaf	Hulpmiddel	Werkvlak- en werkkantteken
Skaaf werksvlak en toets vir gelykheid.	1	2	3	4
Skaaf werkskant gelyk en toets vir haaksheid.	5	6	7	8
Skaaf plank na verlangde dikte .	9, 10, 11	12		
Saag plank na verlangde breedte .		13		
Saag plank na verlangde lengte .	14, 15	16		

Tabel 3.1

(16)

- 3.2 Waarom is dit raadsaam om 'n gat wat deur middel van 'n morse-spiraalboor geboor gaan word, eers met 'n senterpons te merk? (1)
- 3.3 'n Aantal gate moet ewe diep met 'n handboor geboor word. Wat sal jy doen om seker te maak dat al die gate ewe diep is? (1)
- 3.4 Wat maak van die skilbeitel die mees geskikte beitел om die binnehoeke van swaeltstertvoeë mee af te werk? (1)
- 3.5 Die kapbeitel word saam met die blokhamer gebruik om oortollige hout te verwyder. Noem TWEE aspekte van dié beitел se konstruksie wat dit geskik maak om daarop te kap. (2)
- 3.6 Hoe kan 'n winkelhaak getoets word vir haaksheid? (1)

QUESTION 3
HAND AND MACHINE TOOLS

- 3.1 **Table 3.1** shows the working steps and/or processes to work a rough board to dimensions of 1 100 mm x 200 mm x 25 mm. Write the numbers **1** to **16** underneath one another and next to each the correct measuring, marking and/or testing tools, saw and/or plane and/or aid that is used to carry out the mentioned processes.

Working step/process	Measuring / marking / testing tools	Handsaw / handplane	Aid	Face side mark / face edge mark
Plane the face side and test for flatness.	1	2	3	4
Plane the face edge and test for squareness.	5	6	7	8
Plane the board to the required thickness .	9, 10, 11	12		
Saw the board to the required width .		13		
Saw the board to the required length .	14, 15	16		

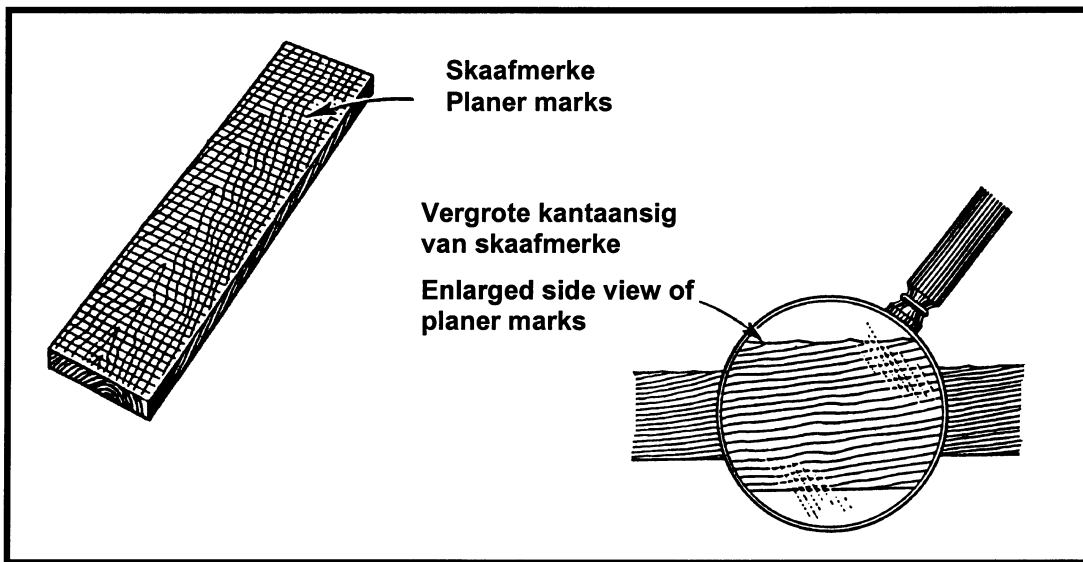
Table 3.1

(16)

- 3.2 Why is it advisable to mark a hole with a centre punch before it is drilled with a morse twist drill? (1)
- 3.3 A number of holes must be drilled the same depth with a hand drill. What will you do to ensure that all the holes are evenly deep? (1)
- 3.4 What makes the paring chisel the most suitable chisel for working off the inside corners of dovetail joints? (1)
- 3.5 The mortice chisel together with the mallet is used to remove excess wood. Name TWO aspects about the construction of the chisel which makes it suitable to hammer on it. (2)
- 3.6 How will you test a try square for squareness? (1)

3.7 Die dikteskaaf:

Figuur 3.7 toon 'n plank wat pas deur die dikteskaaf geskaaf is.



Figuur 3.7

- 3.7.1 Wat veroorsaak die skaafmerke? (1)
- 3.7.2 Met watter handskaaf sal die skaafmerke verwyder kan word? Motiveer jou keuse. (2)
- 3.7.3 Kan 'n skraper ook oorweeg word vir die verwydering van die merke? Ja of Nee. (1)

3.8 Die sirkelsaag

- 3.8.1 Voordat 'n plank op die sirkelsaag gesaag kan word is daar sekere verstellings wat aangebring moet word. Beskryf kortliks hoe jy
- a) die hoogte van die lem sal stel. (3)
 - b) die lem haaks sal instel. (3)
- 3.8.2 Wat is die korrekte posisie van die operateur wanneer 'n plank op die sirkelsaag gekloof word? (1)

3.7 The thicknesser:

Figure 3.7 shows a board that has been planed on a thicknesser.

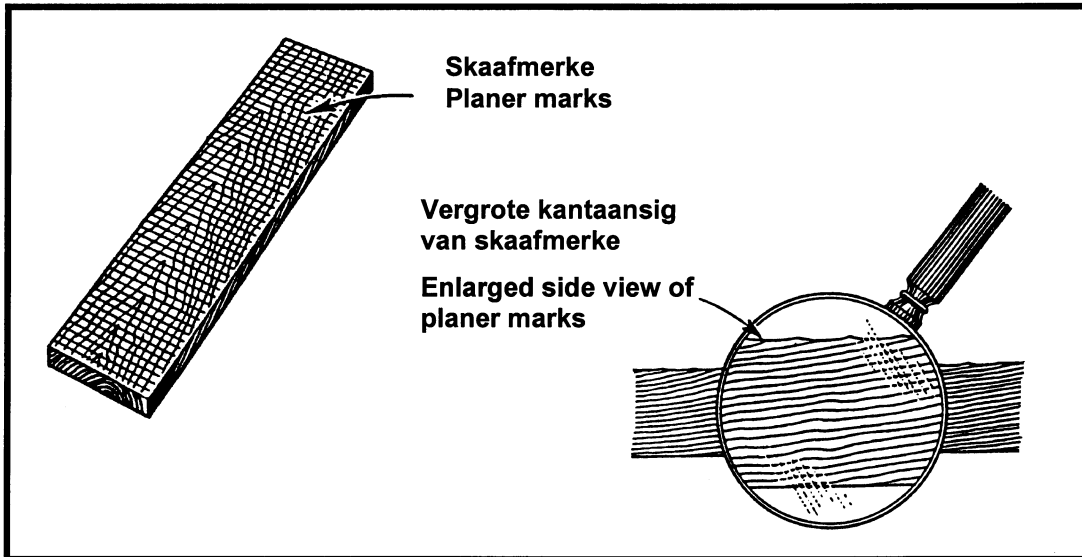


Figure 3.7

3.7.1 What causes the planer marks? (1)

3.7.2 Which hand plane will you use to remove the planer marks?
Motivate your choice. (2)

3.7.3 Can a scraper also be considered to remove the marks? Yes or No. (1)

3.8 The circular saw

3.8.1 Before a board can be sawn on the circular saw there are certain adjustments to be made. Describe briefly how you will

- a) set the height of the blade. (3)
- b) set the blade square. (3)

3.8.2 What is the correct position of the operator when ripping a board on the circular saw? (1)

3.9 Die draaibank

'n Tafelpoot moet uit hout van 900 mm x 75 mm x 75 mm gedraai word. Die hout is reeds vierkantig gemaak. Skryf die letters **A** tot **I** onder mekaar in jou antwoordboek neer. Bestudeer **Tabel 3.9** en koppel die gegewe prosesse met 'n onderdeel(e), toebehoor(e), beitel en/of veiligheidsmaatreëls.

Proses	Onderdeel(e)	Toebehoor(e)	Beitel	Veiligheidsmaatreëls:	
				Masjien	Persoonlik
Monteer plank tussen senters		A + B		C	
Stel spoed van draaibank	D			E	
Draai plank rond (rof)			F		G
Sny van skeilyste			H		
Finale skuurwerk				I	

Tabel 3.9

(9)

3.10 Identifiseer moontlike oorsake vir die volgende foute wat by masjiengereedskap mag voorkom en bied 'n oplossing by elk om dit te voorkom:

3.10.1 Die vlaksaaf:

Die geskaafde kant is nie haaks ten opsigte van die werksvlak nie.

(2)

3.10.2 Die kolomboormasjien:

Werkstuk brand wanneer geboor word.

(2)

3.10.3 Die skuurmasjien:

Die werkstuk lig op wanneer teen die draaiskyf geskuur word.

(2)

3.10.4 Die bandsaag:

Die snit is nie haaks nie.

(2)

[50]

3.9 The wood turning lathe

A piece of wood with dimensions of 900 mm x 75 mm x 75 mm is needed to turn a leg for a table. The board is already made square. Write the letters **A** to **I** underneath one another, study **Table 3.9** and match the given processes with a part(s), fitting(s), chisel and/or safety measurements.

Process	Part(s)	Fitting(s) / Accessory	Chisel	Safety measurements:	
				Machine	Personal
Mount board between centres		A + B		C	
Set speed of lathe	D			E	
Cut board round (rough)			F		G
Cutting of quirks			H		
Final sanding				I	

Table 3.9

(9)

3.10 Identify possible causes for the following errors that might occur when using machine tools and give solutions for each to prevent these errors:

3.10.1 **The jointer:**

The jointed edge is not square to the surface of the stock.

(2)

3.10.2 **The drill press:**

The work burns when drilling.

(2)

3.10.3 **The belt and disk sander:**

The work lifts from the table when doing disk sanding.

(2)

3.10.4 **The band saw:**

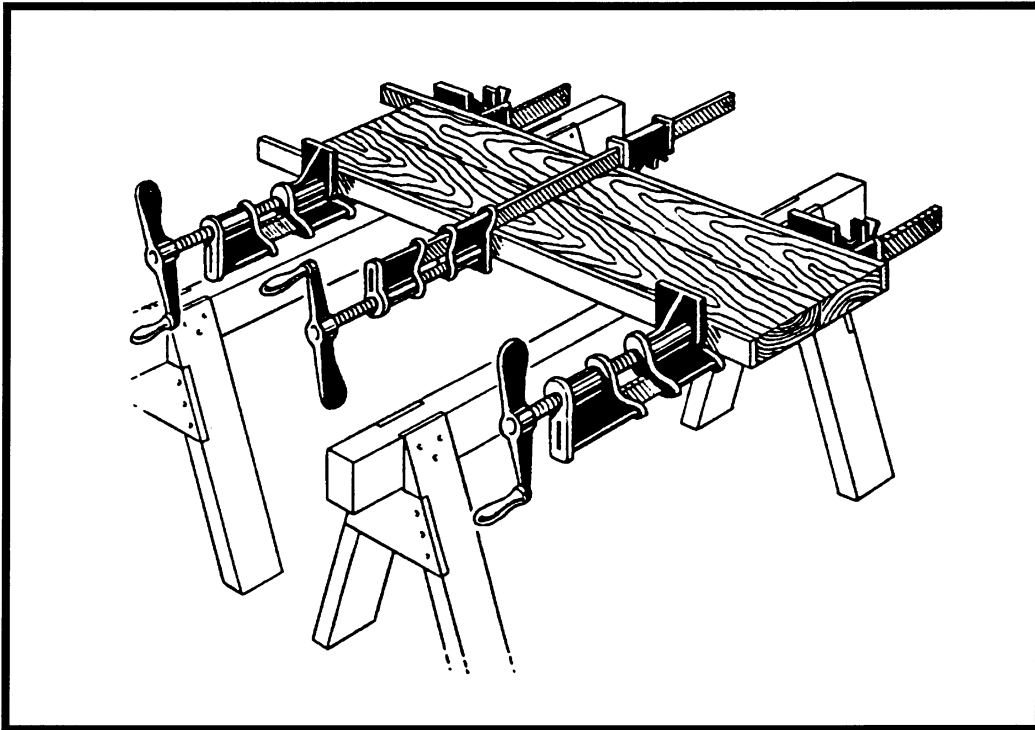
The cut is not square.

(2)

[50]

**VRAAG 4
KONSTRUKSIE EN HOUTWERKVOEË**

4.1 **Figuur 4.1** toon twee planke wat gelym en aan mekaar geklamp is.



Figuur 4.1

- 4.1.1 Wat is die naam van die las wat hier gebruik is? (1)
- 4.1.2 Is die endgrein (jaarringe) van die planke korrek gerangskik? Ja/Nee (1)
- 4.1.3 Waarom is die korrekte rangskikking van die endgrein van uiterste belang? (1)
- 4.1.4 Die draadrigting op die twee planke se boonste vlakke is verkeerdelik getoon. Toon deur middel van 'n skets die korrekte plasing. (1)
- 4.1.5 Gee 'n rede vir jou antwoord in Vraag 4.1.4. (1)
- 4.1.6 Wat is die rede vir die spesifieke plasing van die klampe? (1)
- 4.1.7 Hoe lank moet die planke geklamp bly nadat dit gelym is? (1)

QUESTION 4
CONSTRUCTION AND WOODWORK JOINTS

4.1 **Figure 4.1** shows two boards that have been glued and clamped together.

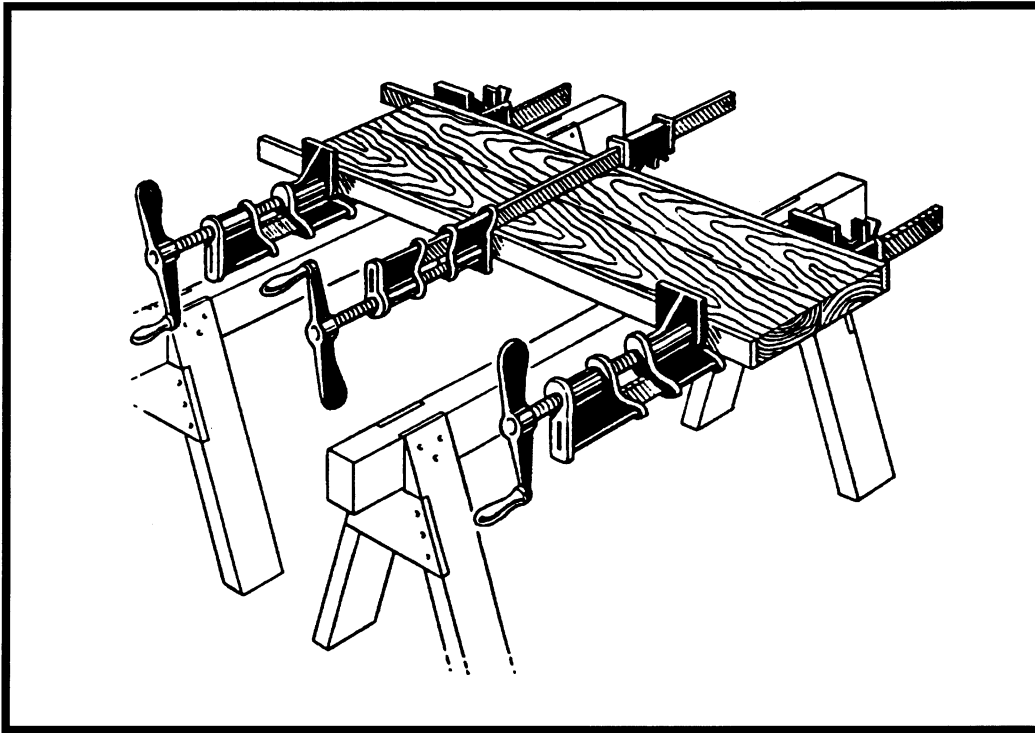


Figure 4.1

- 4.1.1 What is the name of the joint used? (1)
- 4.1.2 Is the end grain (annual rings) of the boards correctly arranged? Yes/No (1)
- 4.1.3 Why is the correct arrangement of the end grain of utmost importance? (1)
- 4.1.4 The grain direction on top of the two boards is shown incorrectly. Show by means of a sketch the correct placing. (1)
- 4.1.5 Give a reason for the answer in Question 4.1.4. (1)
- 4.1.6 What is the reason for the specific arrangement of the clamps? (1)
- 4.1.7 For how long must the boards be clamped after being glued? (1)

- 4.2 **Figuur 4.2** toon 'n stuikvoeg wat deur middel van TWEE verskillende metodes versterk kan word: **A** – paneelspykers
B – versinkkopskroewe

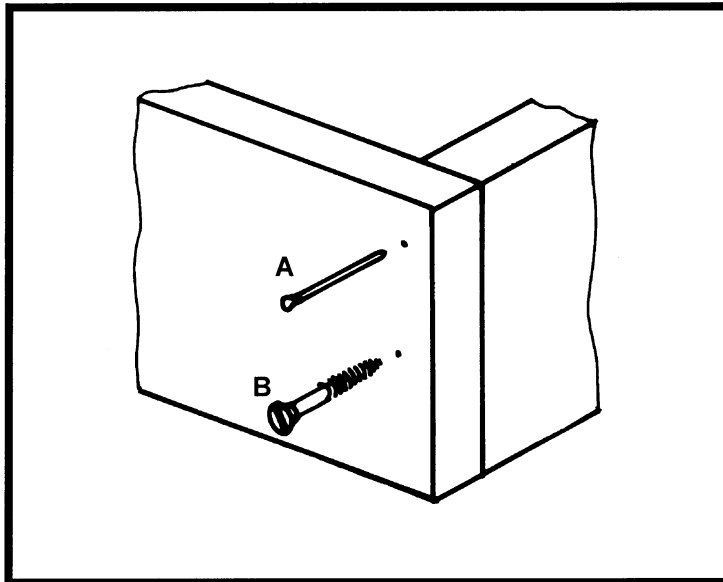


Fig. 4.2

- 4.2.1 Hoe kan **A** verberg word sodat dit nie sigbaar is nie? (2)
- 4.2.2 Waarom word 'n paneelspyker vir die doel voorgestel? (1)
- 4.2.3 Wat kan gedoen word om hamermerke op die hout te voorkom? (1)
- 4.2.4 As die dikte van die hout 12 mm is, hoeveel en watter lengte skroef sal jy voorstel? (2)

4.2 **Figure 4.2** shows a butt joint which could be strengthened by using TWO different methods:

A – panel pins

B – countersunk screws

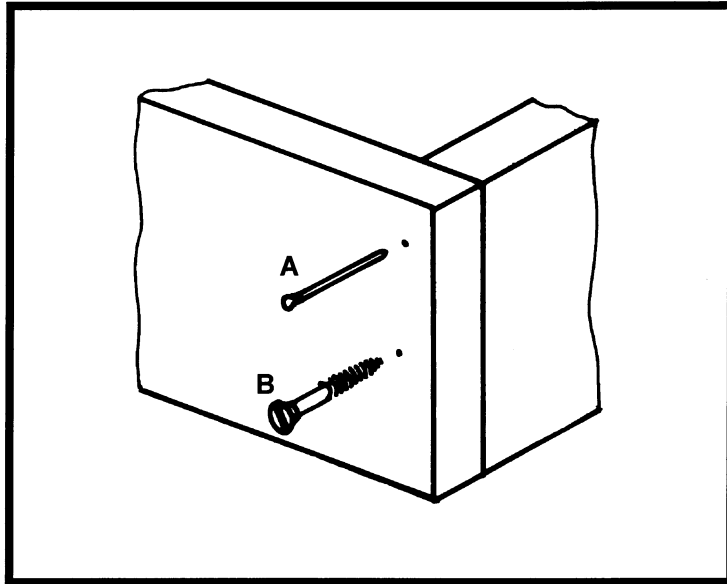
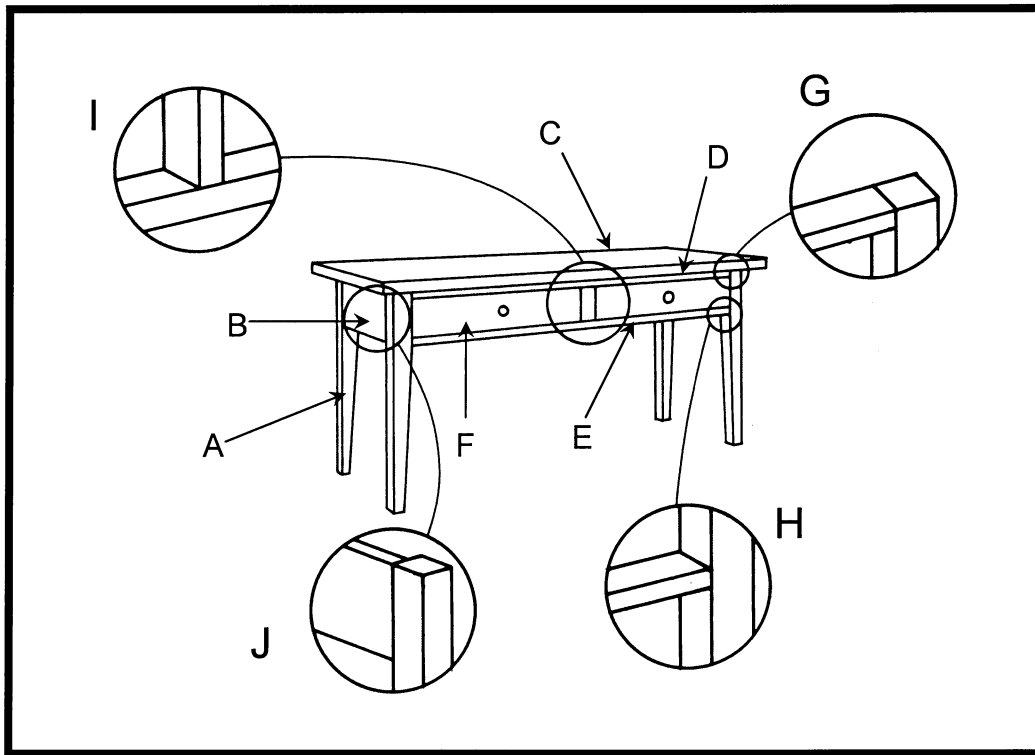


Figure 4.2

- 4.2.1 How can **A** be hidden so that it is not visible? (2)
- 4.2.2 Why are panel pins suggested for this purpose? (1)
- 4.2.3 What could be done to avoid hammer marks in the wood? (1)
- 4.2.4 If the wood is 12 mm thick, how many screws and what length would you suggest? (2)

4.3 **Figuur 4.3** toon 'n tafel uit soliede hout.



Figuur 4.3

- 4.3.1 Skryf die letters **A** tot **F** onder mekaar in jou antwoordboek neer en daarnaas die naam van die onderdeel. (6)
- 4.3.2 Skryf die letters **G** tot **J** onder mekaar neer en daarnaas die naam van die mees geskikte voeg vir die doel. (4)
- 4.3.3 Noem die naam en toon deur middel van 'n benoemde skets hoe jy die blad aan die raam sal heg. Hou in gedagte dat soliede hout voortdurend uitsit en inkrimp. (3)
- 4.3.4 Verduidelik deur middel van 'n benoemde skets die konstruksie wat jy sou gebruik om die laai in posisie te hou en te laat skuif. (3)

4.3 Figure 4.3 shows a table made of solid wood.

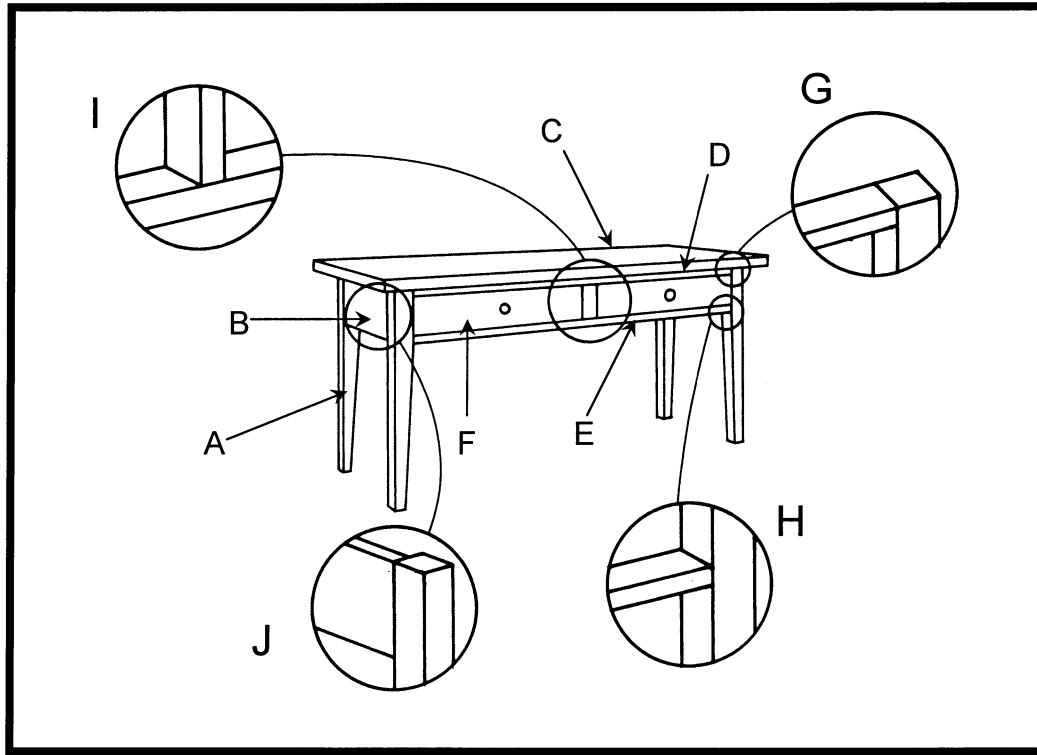
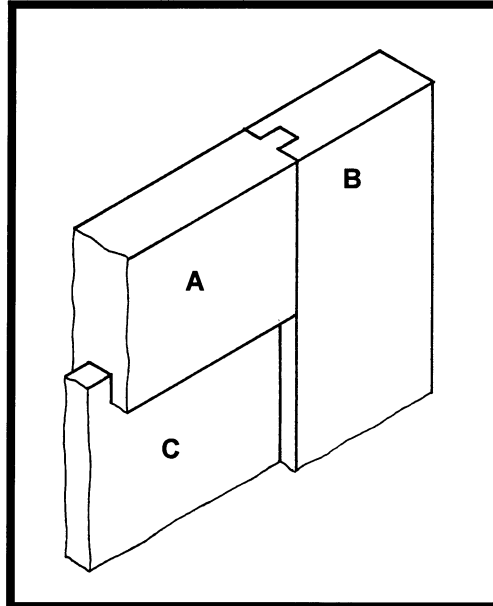


Figure 4.3

- 4.3.1 Write the letters **A** to **F** underneath one another and next to each the name of the part. (6)
- 4.3.2 Write the letters **G** to **J** underneath one another and next to each the name of the most appropriate joint for the task. (4)
- 4.3.3 Name and show by means of a labelled sketch how you will attach the top to the frame. Keep in mind that solid wood expands and contracts constantly. (3)
- 4.3.4 Explain by means of a labelled sketch the construction you will use to keep the drawer in position and let it slide. (3)

- 4.4 **Figuur 4.4** toon 'n gedeeltelike reling (A), styl (B) en paneel (C) van 'n paneeldeur wat deur middel van 'n skoftap-en-gatvoeg met groef aan mekaar gesit moet word. Die afmetings van A en B is 21 mm dik x 60 mm breed.



Figuur 4.4

- 4.4.1 Maak 'n netjiese vryhandskets (vooraansig en bo-aansig) van die tapgedeelte (A) van die voeg en benoem die fasette. (3)
- 4.4.2 Met die gegewe afmetings in gedagte, wat sal die volgende afmetings wees?
- a) Die dikte van die tap (1)
 - b) Die lengte van die tap (1)
 - c) Die hoogte van die skof (1)
- 4.4.3 Wat is die doel van die skof? (1)
- 4.4.4 Waarom is die diepte van die gat effens dieper as die lengte van die tap? (1)
- 4.4.5 Is die dikte van die paneel dieselfde as die breedte van die groef? (1)
- 4.4.6 Word die paneel in die groef gelym? Motiveer jou antwoord. (2)

[40]

- 4.4 **Figure 4.4** shows a partial rail (A), stile (B) and panel (C) of a panelled door which is joined together by a haunched mortice and tenon joint with a groove. The measurements for A and B are 21 mm thick x 60 mm wide.

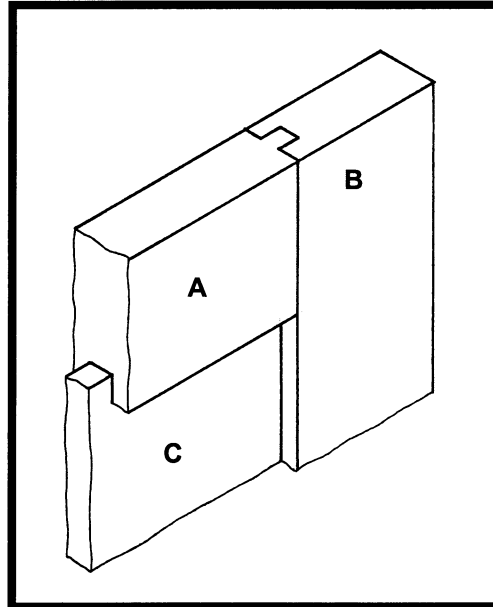


Figure 4.4

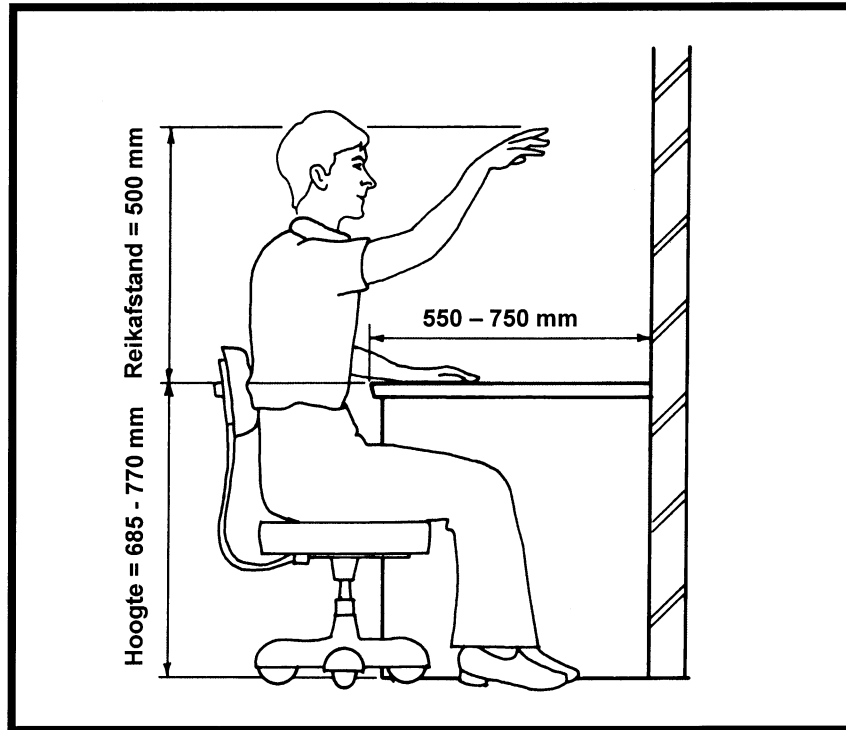
- 4.4.1 Draw a neat freehand sketch (front view and top view) of the tenon part (A) of the joint and label the facets. (3)
- 4.4.2 With the given dimensions in mind what will the following measurements be?
- a) The thickness of the tenon (1)
 - b) The length of the tenon (1)
 - c) The height of the haunch (1)
- 4.4.3 What is the purpose of the haunch? (1)
- 4.4.4 Why is the depth of the mortice a fraction deeper than the length of the tenon? (1)
- 4.4.5 Is the thickness of the panel the same as the width of the groove? (1)
- 4.4.6 Will you glue the panel to the groove? Motivate your answer. (2)

[40]

VRAAG 5
ONTWERP, VERDUURSAMING EN AFWERKING

5.1 Ontwerp

5.1.1 **Figuur 5.1** toon standaard afmetings van 'n lessenaar.



Figuur 5.1

- a) Wat bepaal standaardafmetings vir meubels?
b) Wat word hierdie studie genoem? (2)

5.1.2 'n Houtrak wat 1 200 mm lank is moet vir handboeke en lêers bokant 'n lessenaar teen 'n muur aangebring word. Die lêers het die grootste afmetings, naamlik 290 mm breed x 320 mm hoog.

- a) Ontwerp die rak en skets die voor- en linkeraansig daarvan. Die volgende gegewens moet in die skets getoon word:
 - Rakplank
 - Rakstutte (hoeveelheid en spasiëring)
 - Die volgende afmetings: breedte en dikte van die rak. (9)
- b) Watter houtprodukt of houtsoort sal jy vir die rakplank kies? Gee 'n rede vir jou antwoord. (2)
- c) Hoe hoog sal jy die rak bokant grondvlak maak? (1)
- d) Hoe sal jy die rak teen die muur vassit? (2)

QUESTION 5
DESIGN, PRESERVATION AND FINISHING**5.1 Design**

5.1.1 **Figure 5.1** shows the standard dimensions of a desk.

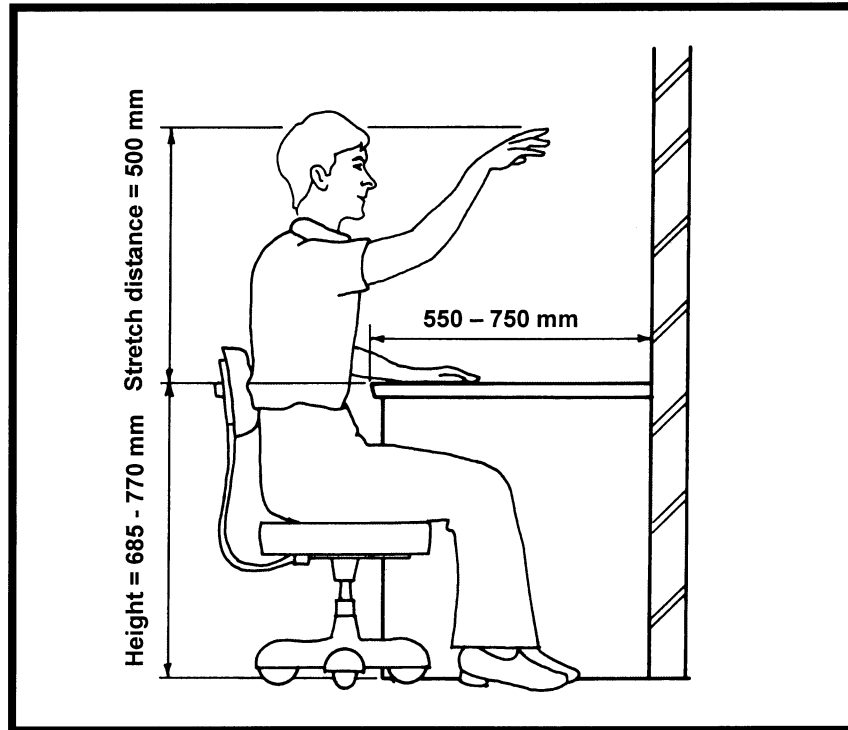


Figure 5.1

- a) What determines standard dimensions for furniture?
b) What is this study called? (2)
- 5.1.2 A wooden shelf of 1 200 mm in length must be secured to a wall above a desk for textbooks and files. The files have the biggest measurements, namely 290 mm deep x 320 mm high.
- a) Make your own design and sketch the front view and left view of the shelf. The following information must be shown in the sketch:
- Shelf board
 - Shelf supports (number and spacing)
 - The following measurements: width and thickness of the shelf (9)
- b) Which type of wood product or timber will you use for the shelf board? Give a reason for your answer. (2)
- c) At what height above ground level will you put the shelf? (1)
- d) How will you secure the shelf to the wall? (2)

5.1.3 As gevolg van moderne tegnologie, die groot aanvraag na meubels en natuurlike hulpbronne wat al hoe skaarser word, verskil hedendaagse meubels aansienlik van dié van 'n eeu gelede. Vergelyk in tabelvorm, kenmerke van hedendaagse meubelstyle met die Kaapse meubelstyl:

	MODERNE MEUBELS	KAAPSE MEUBELS
a) Ontwerp (styl)		
b) Materiaal		
c) Konstruksie		
d) Produksie		
e) Afwerking		

(10)

5.2 Verduursaming:

5.2.1 Wat word met die preservering van hout bedoel? (2)

5.2.2 Swamme benodig sekere toestande om aktief te kan wees. Noem VIER. (4)

5.2.3 Watter een van die volgende kewers val nat hout aan?

- a) Houtpoeierkewer
 - b) Ambrosia-kewer
 - c) Meubelkewer
- (1)

5.2.4 Noem die naam van 'n preserveermiddel wat uiters geskik is vir buitens-huise gebruik. (1)

5.2.5 Watter metode sal jy as die doeltreffendste beskou om hout te preserveer? (1)

5.3 Afwerking:

5.3.1 Lym wat tydens die lymproses uit voegwerk gepers word, moet onmiddellik verwyder word, waarom? (1)

5.3.2 Wat word die proses genoem waartydens ligte minderwaardiger houtsoorte na die voorkoms van donkerder en waardevoller houtsoorte verkleur word? (1)

5.3.3 Noem 'n voorbeeld van 'n middel wat vir bogenoemde proses gebruik kan word. (1)

5.3.4 Waspolitoer is goedkoper en wend makliker aan as vernis, maar as beskermende bedekkingsmiddel het vernis meer voordele, bespreek. (2)

[40]

TOTAAL: 200÷2=100

5.1.3 As a result of modern technology, the huge demand for furniture and the decrease in natural resources, contemporary furniture differs considerably from that of a century ago. Compare in table form, under the following headings (characteristics), the contemporary furniture style with the Cape furniture style:

	CONTEMPORARY FURNITURE	CAPE FURNITURE
a) Design (style)		
b) Material		
c) Construction		
d) Production		
e) Finishing		

(10)

5.2 Preservation:

5.2.1 What does it mean to preserve wood? (2)

5.2.2 Fungi require certain conditions to be active. Name FOUR. (4)

5.2.3 Which one of the following beetles attacks wet wood?

- a) Powder post
 - b) Ambrosia beetle
 - c) Furniture beetle
- (1)

5.2.4 State the name of a preservative that is particularly suitable for outdoor use. (1)

5.2.5 Which method do you regard as the most effective to preserve wood? (1)

5.3 Finishing:

5.3.1 Glue that has been pressed out when joining work has to be removed immediately. Why? (1)

5.3.2 What is the process called where light coloured inferior wood is coloured to resemble darker and costlier woods? (1)

5.3.3 Give the name of a preparation that is used for the above-mentioned process. (1)

5.3.4 Wax polish is cheaper and applies more easily than varnish, but as a protective coating, varnish has more advantages. Discuss. (2)

[40]

TOTAL: 200÷2=100