

**GAUTENG DEPARTMENT OF EDUCATION
SENIOR CERTIFICATE EXAMINATION**

**WOODWORK SG
(Second Paper: Theory)**

QUESTION 1

1.1

1.1.1	D	1.1.11	B
1.1.2	D	1.1.12	B
1.1.3	A	1.1.13	C
1.1.4	B	1.1.14	D
1.1.5	A	1.1.15	D/C
1.1.6	C	1.1.16	D
1.1.7	D	1.1.17	A
1.1.8	D	1.1.18	D
1.1.9	D	1.1.19	A
1.1.10	B	1.1.20	C

(20)

1.2

1.2.1	B	–	Imbuia
1.2.2	D	–	Iroko
1.2.3	B	–	Wood ready for export
1.2.4	D	–	Marking gauge or C – outside calipers
1.2.5	C	–	Jointer
1.2.6	A	–	Ball pene hammer
1.2.7	D	–	Ripsaw
1.2.8	A	–	Drawer mortice and tenon joint
1.2.9	B	–	T-joint
1.2.10	D	–	Aqueous solutions of metallic salts

(10)


[30]

QUESTION 2

2.1

A	–	2	I	–	1
B	–	10	J	–	1
C	–	5	K	–	3
D	–	6 OR 11	L	–	3
E	–	11	M	–	1
F	–	3, 5	N	–	1
G	–	2	O	–	3/1/2
H	–	3	P	–	4

(16)

- 2.2 2.2.1 c – Beech (1)
- 2.2.2 Light brown with a pink sheen (1)
- 2.2.3 Steam bending process (1)
- 2.2.4 b – Tangential sawn boards (1)
- 2.2.5 Square method (1)
- 2.3 2.3.1 • not adjustable
• cuts only same width (Any 1) (1)
- 2.3.2 i) Makes a number of cuts simultaneously
ii) Fewer adjustments are needed.
iii) Less log handling. (3)
- 2.4 2.4.1 Cross-cutting method / Through and Through (1)
- 2.4.2 When seasoning takes place, boards start to shrink. Because of tangential shrinkage, boards that do not include heartwood will distort. Sapwood shrinks more than heartwood. (1)
- 2.4.3 Boards include outer parts of the log. (1)
- 2.4.4 i) Easy method
ii) Cheap method
iii) Produces the most wood with the least waste
iv) Quickest method (Any 2) (2)
- 2.4.5 The appearance of oak boards is important and therefore cuts made with the medullary rays are used, for example the quarter-sawing method. (1)
- 2.4.6 Because of uneven seasoning surface cracks occur (1)
- 2.5 2.5.1 Incorrectly packed seasoning stacks / tension in timber / insufficient seasoning (1)
- 2.5.2  (1)
- 2.5.3 Tamboti (1)
- 2.5.4 The ends of a board dry faster than the rest of the board so shrinking of the cells will take place more rapidly at the ends. (1)
- 2.5.5 • Normally knots cause working problems.
• Sometimes the knot can get loose and fall out.
• Knots can reduce the strength of the timber. (Any 1) (1)

- 2.6 i) The certainty that the product is suitable for the purpose.
 ii) It shows the continuous quality.
 iii) It gives confidence in the manufacturer.

(3)
 [40]

QUESTION 3

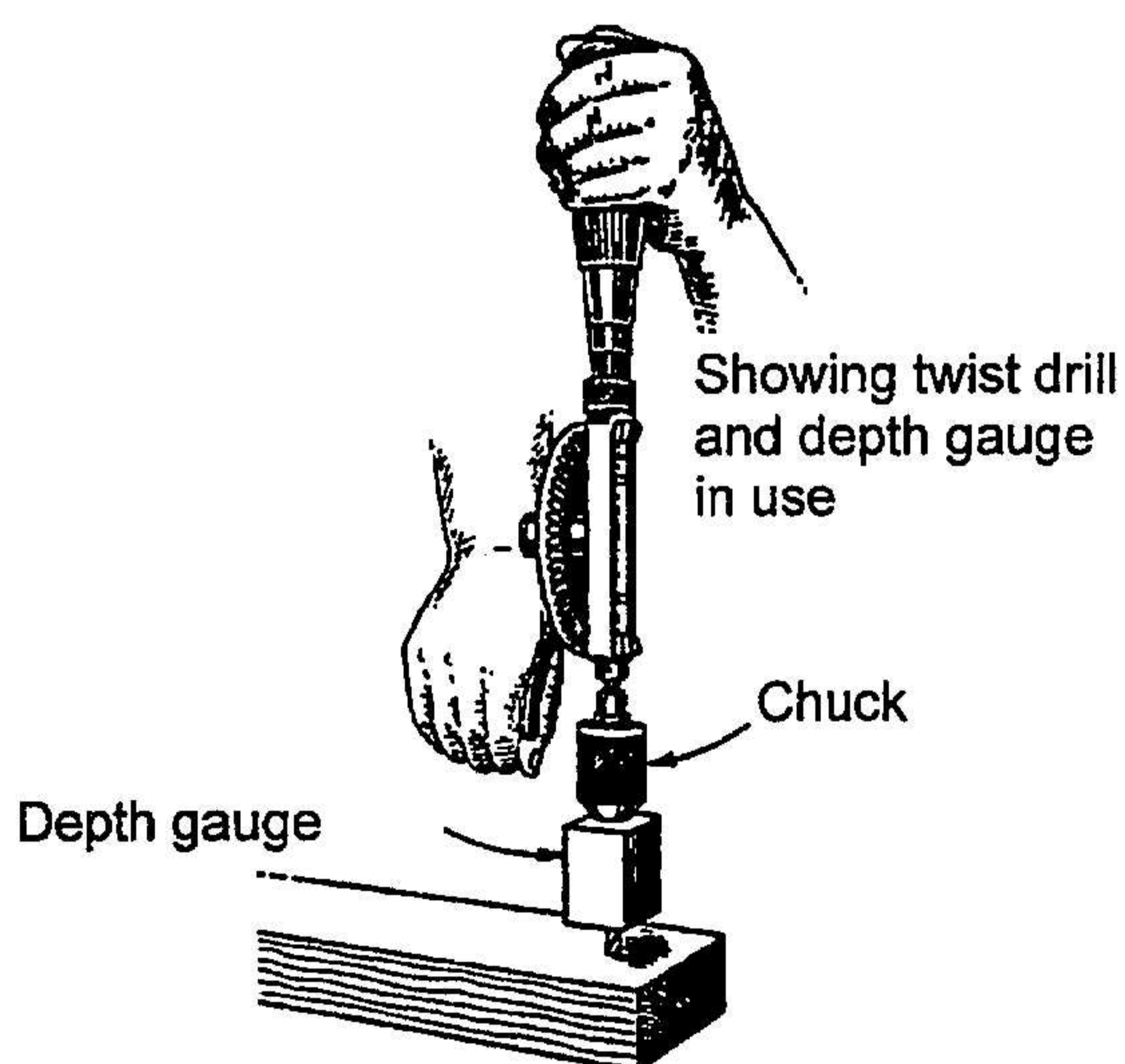
3.1

- | | | |
|---------------------------------|---|------|
| 1. Steel ruler / Try square | 9. Steel ruler | |
| 2. Jack plane / Trying plane | 10. Marking gauge | |
| 3. Bench stop / G-clamp | 11. Pencil | |
| 4. f | 12. Jack plane / Trying plane | |
| 5. Try square | 13. Rip saw | |
| 6. Jack plane / Smoothing plane | 14. Measuring tape / steelfolding ruler | |
| 7. Bench vice | 15. Try square | |
| 8. \wedge | 16. Cross-cut saw / Tenon saw | (16) |

- 3.2 To prevent the drill bit wandering
 To make sure the hole is drilled accurately

(1)

3.3



- masking tape
- Tipex / point

(1)

- 3.4 The slanted sides / beveled

(1)

- 3.5 i) Ferrule
 ii) Leather washer

(2)

- 3.6 Mark a line at 90° to a true edge. Turn the stock over to see if the blade coincides with the line from the other side.

or

To test if a square is right-angled two squares can be placed against each other with the straight sides facing each other.

(1)

- 3.7 3.7.1 • Incorrect setting of blades
• Outer feed rollers
• feeding speed to fast. (1)
- 3.7.2 • Smoothing plane / Jack plane (2)
• Work board to smooth finish
- 3.7.3 Yes (1)
- 3.8 3.8.1 a) i) Use depth adjustment crank.
ii) Set blade ± 6 mm above surface of board to be cut.
iii) Lock the depth adjustment crank with the lock knob. (3)
- b) i) Use blade tilt crank.
ii) Set blade square by using a try square.
iii) Lock the blade tilt crank with the lock knob (3)
- 3.8.2 Never stand directly behind the saw blade. (1)
- 3.9 A Head stock – Spur centre
B Tail stock – Ball bearing centre / dead centre
C Stock must be fastened securely / Make sure stock moves freely
D Four-speed pulleys
E Machine must be switched off
F Firmer gouge
G Wear safety goggles / Remove loose hanging cloths.
H Parting chisel
I Remove the tool rest. (9)
- 3.10 3.10.1 The jointer:
i) cause : • Fence not 90° to tables
• Work tilted during pass.
ii) solution : • Adjust fence square to tables.
• Hold stock snug against fence throughout pass. (Any 1) (2)

3.10.2 The drill press:

- i) cause :
- excessive speed
 - chips not clearing
 - dull drill
 - feeding too fast
 - incorrect drill
- ii) solution :
- Change to slower speed
 - Retract drill frequently to clear chips
 - Sharpen
 - Feed just enough to keep tool cutting.

(Any 1) (2)

3.10.3 The belt and disk sander

- i) cause :
- Using wrong side of disk.
- ii) solution :
- Always place work on "down" side of disk.

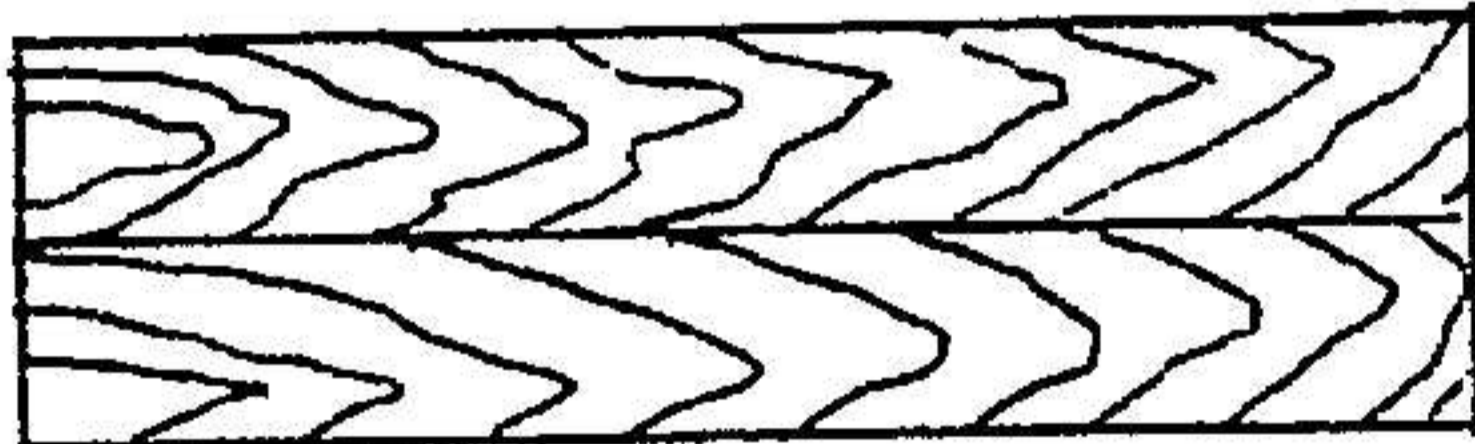
(2)

3.10.4 The band saw:

- i) cause :
- Misalignment
- ii) solution :
- Adjust table square to blade.

(2)

[50]**QUESTION 4**

- 4.1 4.1.1 Rubbed glued joint / Butt (1)
- 4.1.2 Yes (1)
- 4.1.3 If the end grain lies in the same direction warping will take place (1)
- 4.1.4  (1)
- 4.1.5 The grains of the two boards run in the same direction so that finishing could be done with the grain all over. (1)
- 4.1.6 Place the cramps alternately top and bottom. This will prevent the boards from slipping out under pressure and will ensure that the surface remains straight. (1)
- 4.1.7 Leave the glued work until the glue reaches full strength / 20 min +. (1)
- 4.2 4.2.1 Drive panel pin under the surface of the wood and fill with woodfiller. (2)
- 4.2.2 Because of the small lead. (1)

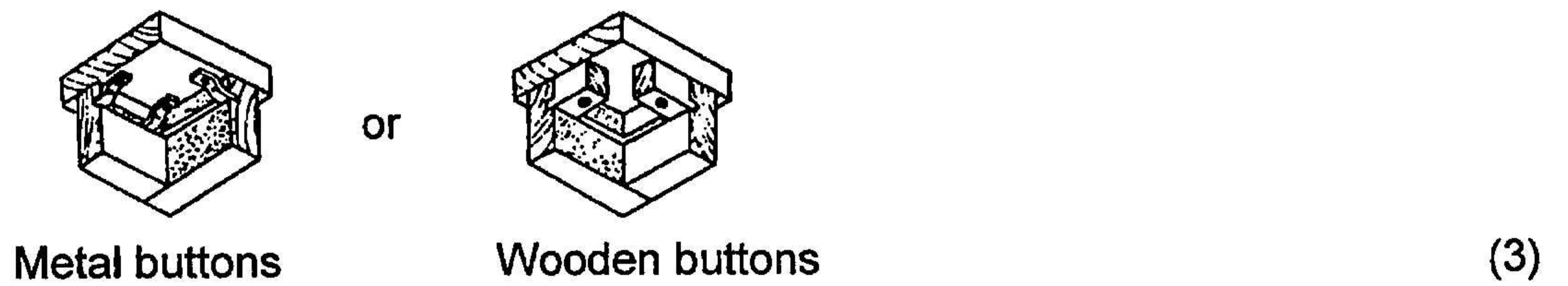
4.2.3 Use a nail punch. / Correct hammering technique. (1)

4.2.4 25 mm minimum 40 maximum. (2)

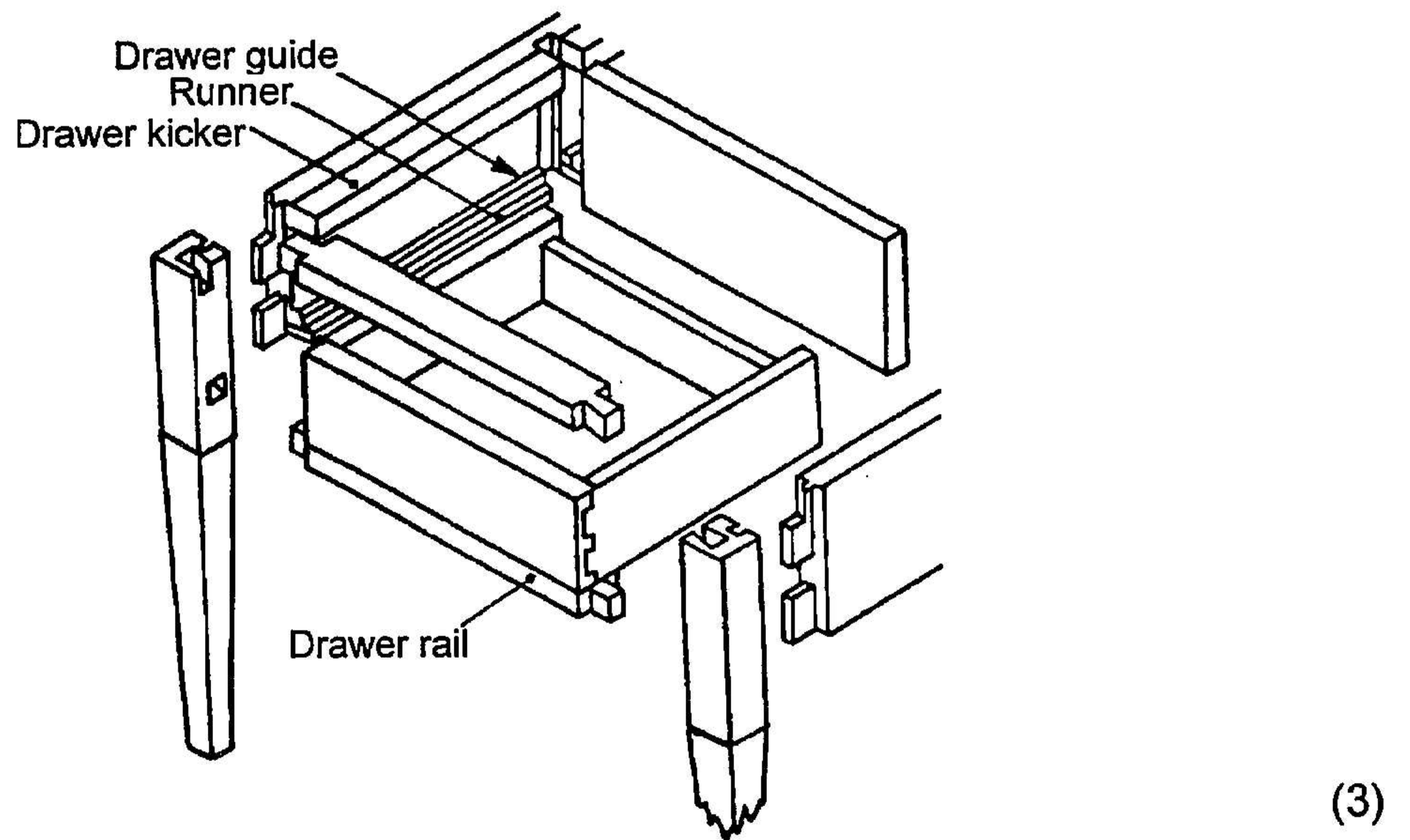
- 4.3 4.3.1
- A - Leg
 - B - Side rail
 - C - Top
 - D - Top rail
 - E - Drawer rail
 - F - Drawer front
- (6)

- 4.3.2
- G - Single dovetail joint
 - H - Concealed mortice and Tenon joint (Four shouldered)
 - I - Stopped housed joint / Concealed mortice and tenon joint
 - J - Double mortice and tenon joint.
- (4)

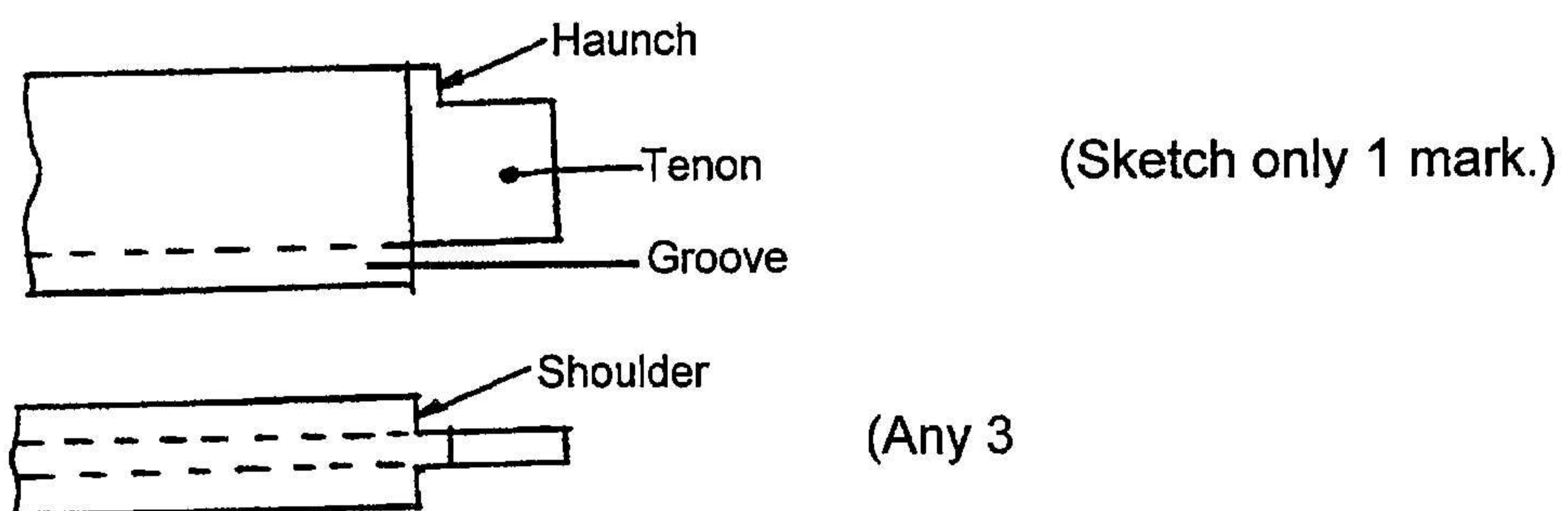
4.3.3



4.3.4



4.4 4.4.1



- 4.4.2 a) 7 mm (1)
 b) 40 mm (1)
 c) 7 mm (1)
- 4.4.3 The purpose of the haunch is to fill the groove so that an opening doesn't exist. (1)
- 4.4.4 When the tenon is pressed into the mortice, the glue will be pressed out. When the joint is placed under pressure, the excess glue will crack the wood. (1)
- 4.4.5 The panel is made just smaller than the groove. / No (2)
- 4.4.6 No, the panel will not be glued. To make provision for expansion and shrinkage. This prevents the frame from being forced apart. (2)

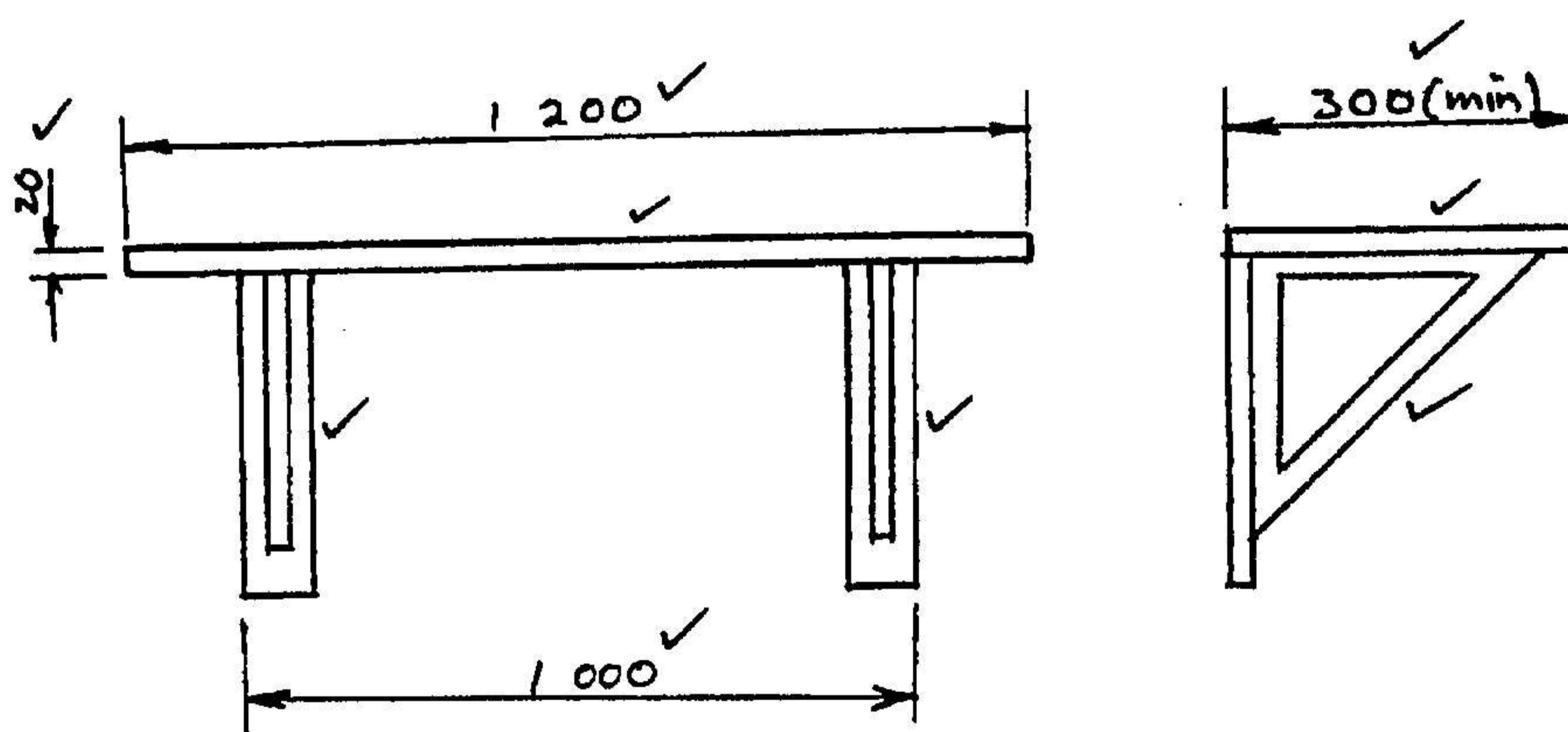
[40]

QUESTION 5

- 5.1.1 a) The anatomy of the human body and the reach of a person must be kept in mind when considering articles and living space of man.

- b) Ergonomics (2)

- 5.1.2 a)



(9)

- b) i) Any usable solid timber, e.g. S.A. pine

or

Any wooden product, e.g. chip board

- ii) Any usable timber (2)
- c) ± 1200 mm (1)
- d) Wall plugs and screws (2)

5.1.3	<u>Contemporary furniture</u>	<u>Cape furniture style</u>	
a) <u>Design:</u>	Copies of earlier styles / future	Decorative / Woodcarving	
b) <u>Material:</u>	Board products	Solid wood	
c) <u>Construction:</u>	Modern joining methods	Traditional joints	
	Machine made	Hand made	
d) <u>Production:</u>	Mass production	Low volumes	
e) <u>Finishing:</u>	Spray finish	Wax, oil, French polish and natural varnish	(10)
	Synthetic lacquer		

5.2 Preservation

5.2.1 Agents used to treat timber to improve the natural durability of wood. To protect wood against deterioration and destruction. (2)

- 5.2.2
- i) Enough moisture
 - ii) Enough oxygen
 - iii) Suitable temperature
 - iv) Suitable food
 - v) Absence of toxic chemicals
- (Any 4) (4)

5.2.3 b – Ambrosia beetle (1)

5.2.4 Coal tar creosotes (1)

5.2.5 High pressure process (1)

5.3 Finishing

5.3.1 If excess glue dries, removing it will be very difficult. / seals pores (1)

5.3.2 Staining (1)

- 5.3.3
- Water stain
 - Oil stain
 - Non-grain-raising stains
- (Any 1) (1)

- 5.3.4
- Varnish is water-resistant
 - Does not scratch easily
 - Is heat-resistant
- (Any 2) (2)

[40]

TOTAL: 200÷2=100

END

**GAUTENGSE DEPARTEMENT VAN ONDERWYS
SENIORSERTIFIKAAT- EKSAMEN**

**HOUTWERK SG
(Tweede Vraestel: Teorie)**

VRAAG 1

1.1

1.1.1	D	1.1.11	B
1.1.2	D	1.1.12	B
1.1.3	A	1.1.13	C
1.1.4	B	1.1.14	D
1.1.5	A	1.1.15	D/C
1.1.6	C	1.1.16	D
1.1.7	D	1.1.17	A
1.1.8	D	1.1.18	D
1.1.9	D	1.1.19	A
1.1.10	B	1.1.20	C

(20)

1.2

1.2.1	B	–	Imbuia
1.2.2	D	–	Iroko
1.2.3	B	–	Hout gereed vir uitvoer
1.2.4	D	–	Enkelpen kruishout of buite passer
1.2.5	C	–	Rolskaaf
1.2.6	A	–	Bolpen hamer
1.2.7	D	–	Kloofsaag
1.2.8	A	–	Laai-tap-en-gatvoeg
1.2.9	B	–	T-voeg
1.2.10	D	–	Wateroplossing van metaalsoute

(10)


[30]

VRAAG 2

2.1

A	–	2	I	–	1
B	–	10	J	–	1
C	–	5	K	–	3
D	–	6 OF 11	L	–	3
E	–	11	M	–	1
F	–	3, 5	N	–	1
G	–	2	O	–	3/2/1
H	–	3	P	–	4

(16)

- 2.2 2.2.1 c – Beuk (1)
- 2.2.2 Ligbruin met 'n pienkerige skynsel (1)
- 2.2.3 Stoombuig proses (1)
- 2.2.4 b – Tangensiaal gesaagde planke (1)
- 2.2.5 Vierkantmetode (1)
- 2.3 2.3.1 • Nie verselbaar (1)
• Saag slegs een dikte plank (Enige 1) (1)
- 2.3.2 i) Maak hele aantal snitte gelyktydig
ii) Minder verstelling is nodig
iii) Minder blok hantering (3)
- 2.4 2.4.1 Dwarssaag – of deursnee metode (1)
- 2.4.2 Wanneer droging plaasvind, vind krimpung ook plaas. As gevolg van tangensiale krimpung verwing planke wat nie kernhout bevat nie. Saphout krimp meer as kernhout. (1)
- 2.4.3 Planke sluit buitenste dele van die stomp in. (1)
- 2.4.4 i) Maklikste manier
ii) Goedkoop metode
iii) Lewer meeste hout met minste vermorsing
iv) Vinnigste manier (Enige 2) (2)
- 2.4.5 Die voorkoms van eikehout planke is belangrik en snitte wat saam met die murgstrale gedoen word, word verkies, bv. die kwartsang metode. (1)
- 2.4.6 As gevolg van oneweredige droging ontstaan oppervlakte barsies (spanning wat verbreek). (1)
- 2.5 2.5.1 Verkeerde stapeling van droog stapels / spanning in hout / onvoldoende draging (1)
- 2.5.2  (1)
- 2.5.3 Tambotie (1)
- 2.5.4 Die ente van planke droog vinniger as die res van die plank en inkrimpung van die houtselle sal dus vinniger aan die ente plaasvind. (1)
- 2.5.5 • Kwaste gee gewoonlik bewerkingsprobleme.
• Soms kan dit los raak en uitval.
• Dit kan die sterkte van die plank nadelig beïnvloed. (Enige 1) (1)

- 2.6 i) The certainty that the product is suitable for the purpose.
 ii) It shows the continuous quality.
 iii) It gives confidence in the manufacturer.

(3)
 [40]

QUESTION 3

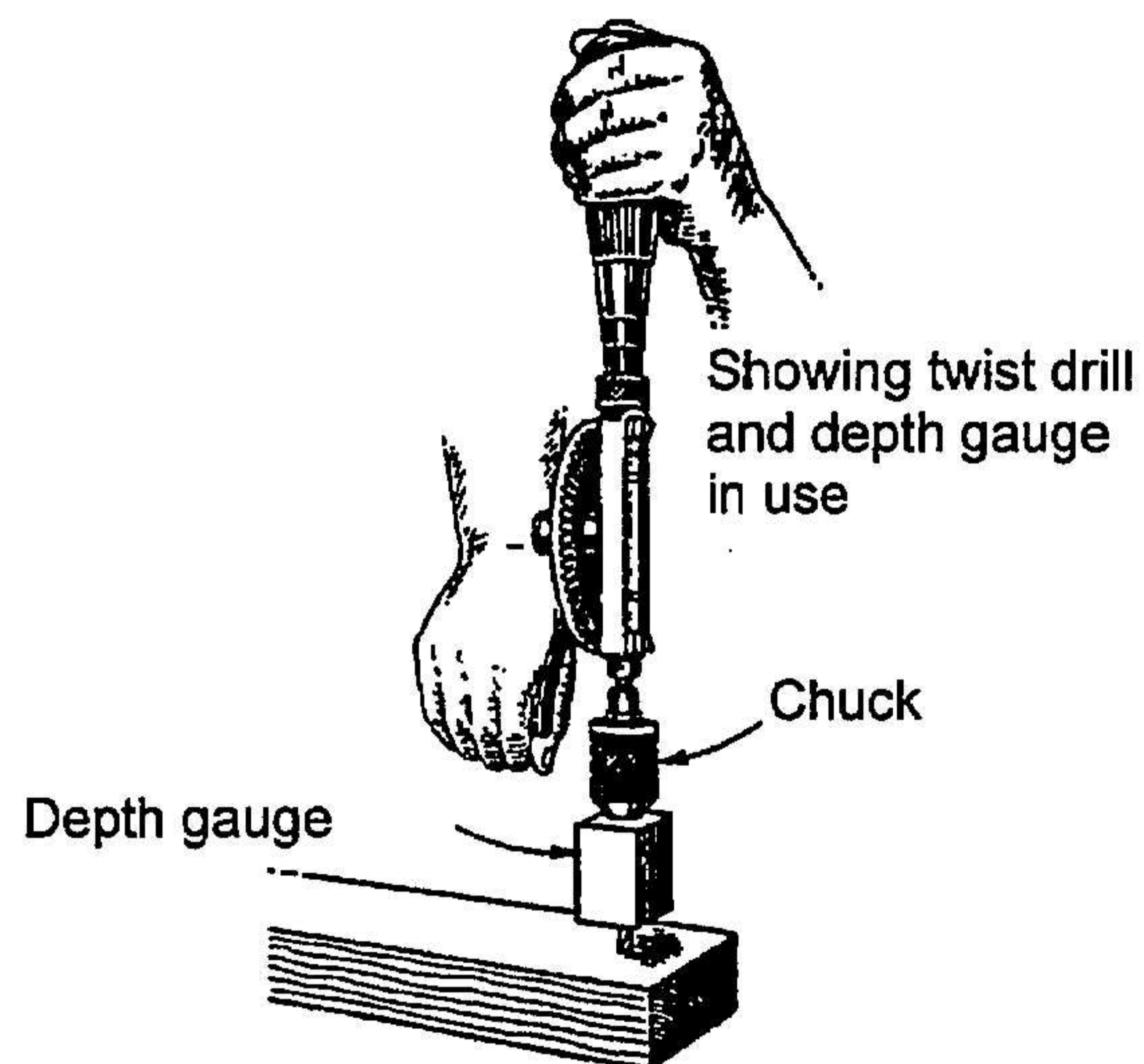
3.1

- | | | |
|---------------------------------|---|------|
| 1. Steel ruler / Try square | 9. Steel ruler | |
| 2. Jack plane / Trying plane | 10. Marking gauge | |
| 3. Bench stop / G-clamp | 11. Pencil | |
| 4. ϕ | 12. Jack plane / Trying plane | |
| 5. Try square | 13. Rip saw | |
| 6. Jack plane / Smoothing plane | 14. Measuring tape / steelfolding ruler | |
| 7. Bench vice | 15. Try square | |
| 8. \wedge | 16. Cross-cut saw / Tenon saw | (16) |

- 3.2 To prevent the drill bit wandering
 To make sure the hole is drilled accurately

(1)

3.3



- masking tape
- Tipex / point

(1)

- 3.4 The slanted sides / beveled

(1)

- 3.5 i) Ferrule
 ii) Leather washer

(2)

- 3.6 Mark a line at 90° to a true edge. Turn the stock over to see if the blade coincides with the line from the other side.

or

To test if a square is right-angled two squares can be placed against each other with the straight sides facing each other.

(1)

- 2.6 i) Die sekerheid dat die produk geskik is vir die doel waarvoor benodig.
 ii) Dit dui deurlopende kwaliteit aan.
 iii) Gee vertroue in die vervaardiger.

(3)
 [40]

VRAAG 3

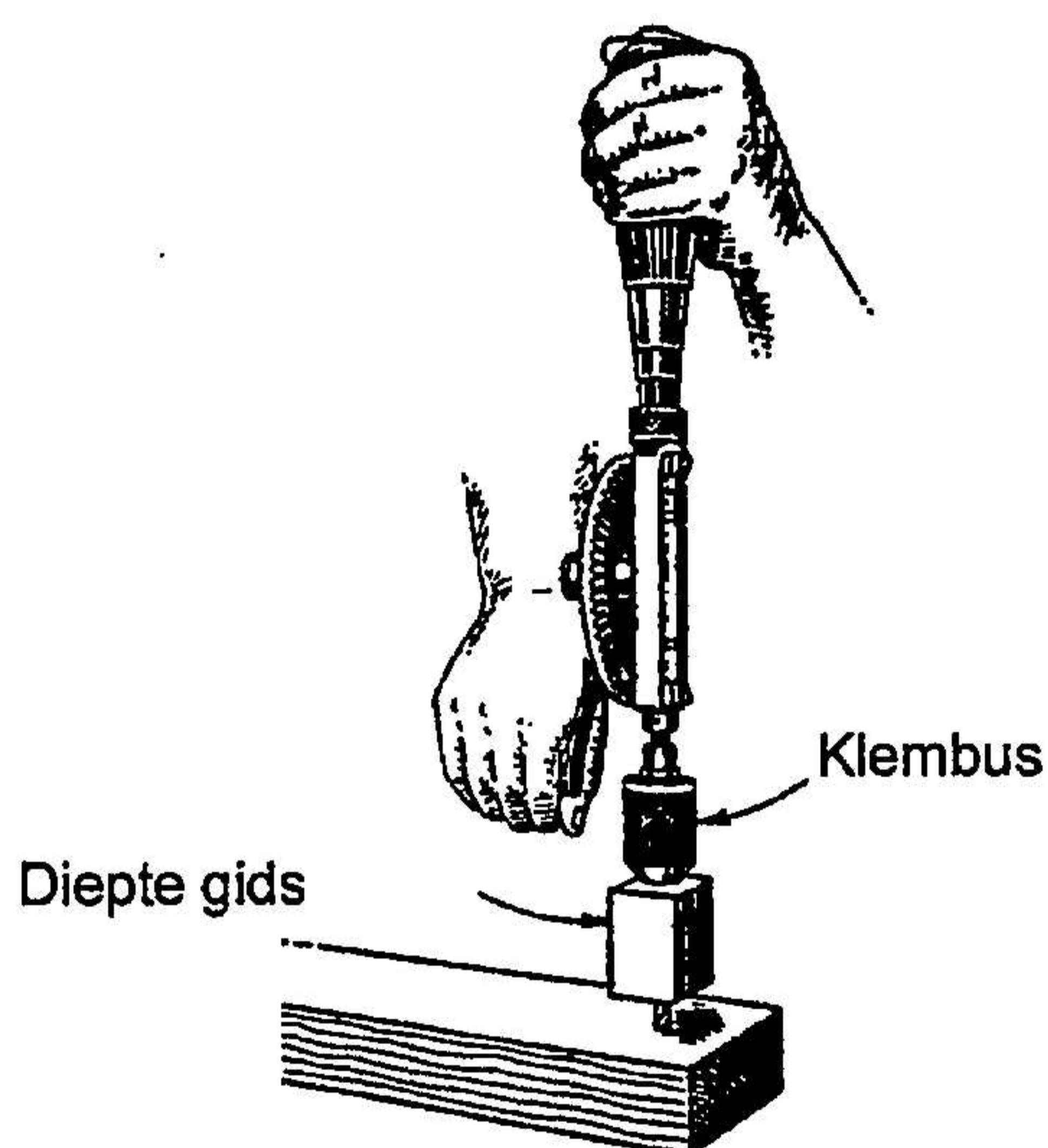
3.1

- | | | |
|--------------------------------------|-----------------------------------|--------------------------|
| 1. Staal meetstok / Winkelhaak/Maatb | 9. Staal meetstok/Maatb | } volgorde
kan wissel |
| 2. Voorloperskaaf / Reiskaaf | 10. Enkelpen kruishout | |
| 3. Bank stopper / G – klamp | 11. Potlood | |
| 4. - | 12. Voorloperskaaf / Reiskaaf | |
| 5. Winkelhaak | 13. Kloofsaag | |
| 6. Voorloperskaaf / Stoetskaaf | 14. Maatband / Staal van meetstok | } volgorde
kan wissel |
| 7. Bankskroef | 15. Winkelhaak | |
| 8. ^ | 16. Dwarssaag / Rugsaag | (16) |

- 3.2 om te verhoed dat die boor wandel
om akkuraatheid te verseker

(1)

3.3



- Maskeer band
- Tipex / verf

(1)

- 3.4 Die skuinskante

(1)

- 3.5 i) Noodring
 ii) Leerwasser

(2)

- 3.6 Trek 'n lyn 90° aan 'n reguit kant. Swaai die winkelhaak na die alternatiewe kant en vergelyk dit met die lyn wat getrek is.

of

Om te toets of 'n winkelhaak haaks is kan twee winkelhaak teen mekaar op 'n suiwerkant geplaas word.

(1)

- 3.7 3.7.1 ● Foutiewe in stelling van lemme
 ● Uitvoer rollers
 ● Voelspoed te vinnig
 ● Lemme stomp (Enige 1) (1)
- 3.7.2 ● Soetskaaf / voorloperskaaf (2)
 ● Om plank glad af te werk
- 3.7.3 Ja (1)
- 3.8 3.8.1 a) i) Gebruik dieptestelwiel.
 ii) Stel lem ± 6 mm bokant oppervlakte van plank wat gesaag word.
 iii) Sluit diepte stelwiel met sluitknop (3)
- b) i) Gebruik kantelwiel
 ii) Stel lem haaks deur met winkelhaak te toets.
 iii) Sluit kantelwiel met sluitknop (3)
- 3.8.2 Staan buite lyn van roterende lem (1)
- 3.9 A Loskop – Koëlsenter / dooie senter } of B
 B Vaskop – vurksenter } A
 C Draai werkstuk stewig vas / Toets of werkstuk vry loop
 D Vierspoed katrolle
 E Masjien moet afgeskakel wees?
 F Gutsbeitel.
 G Dra 'n veiligheidsbril. / verwyder los hangende klere
 H Skeibeitel
 I Verwyder die beitelstut (9)
- 3.10 3.10.1 Die vlakskaaf:
 i) oorsak : ● Leiblok nie 90° t.o.v. tafel
 ● Werkstuk kantel gedurende skaaf proses
 ii) oplossing : ● Stel leiblok haaks t.o.v. tafel
 ● Hou werkstuk stewig teen leiblok wanneer skaaf.
 (Enige 1) (2)

3.10.2 Die kolomboormasjien:

- i) oorsaak :
- spoed te vinnig
 - snysels verstop boor
 - boor is stomp
 - voerspoed te vinnig
 - verkeerde boor
- ii) oplossing :
- verander na stadiger spoed
 - Trek boor kort-kort terug om snysels vry te laat
 - Maak boor skerp
 - voerspoed sodanig dat boor bly sny
 - kry boor met versnelde groef

(Enige 1) (2)

3.10.3 Die skuur masjien: / op bewegende kant

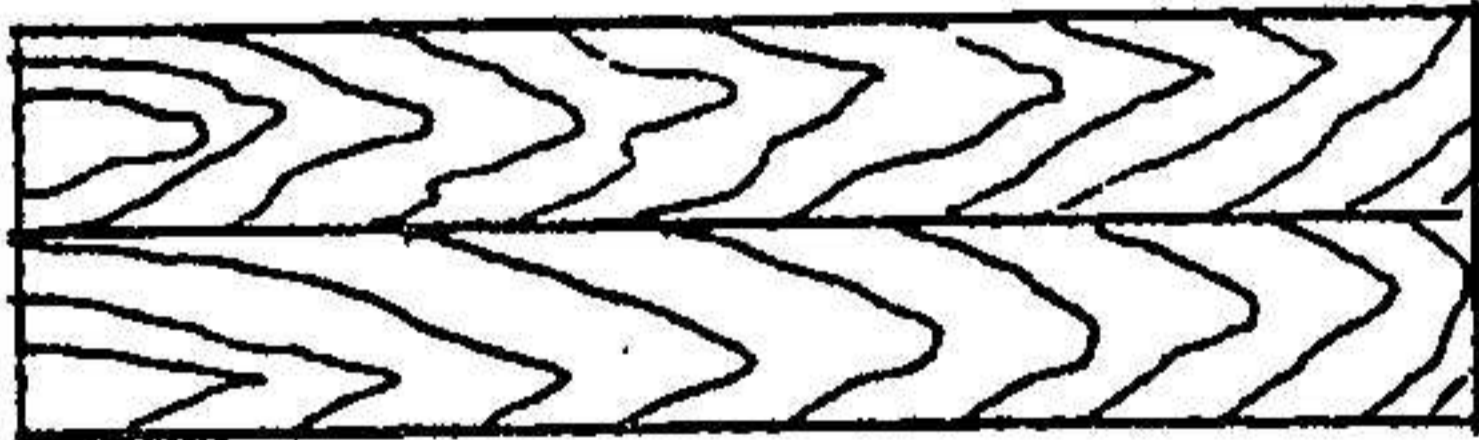
- i) oorsaak :
- Skuur teen die verkeerde kant van die skyf.
- ii) oplossing :
- Skuur altyd aan afbewegende kant van skyf.

(2)

3.10.4 Die bandsaag:

- i) oorsaak :
- Foutiewe instelling (tafel)
- ii) oplossing :
- verstel tafel haaks t.o.v. lem

(2)
[50]**VRAAG 4**

- 4.1 4.1.1 Gelymde vryflas / stuiklas (1)
- 4.1.2 Ja (1)
- 4.1.3 Indien die endgrein in dieselfde rigting lê, sal komtrekking plaasvind (1)
- 4.1.4  (1)
- 4.1.5 Die grein van die twee planke loop in dieselfde rigting sodat afwerking oral saam met die greinrigting kan geskied. (1)
- 4.1.6 Plaas klampe alternatiewelik bo en ander. Dit sal verhoed dat die planke onder spanning uitglip en verseker dat die oppervlak reguit is. (1)
- 4.1.7 Laat die gelymde werk totdat die kis volle sterkte bereik het. Soort lym bepaal dit. Polivinielasetaal-emulsielyn is ongeveer 2 uur. (1)
- 4.2 4.2.1 Slaan paneelspyker tot onder hout oppervlakte en vul met hout vuller (2)
- 4.2.2 Om rede die klein kop (1)

4.2.3 Gebruik spyker pons / Gebruik korrekte hammer tegniek (1)

4.2.4 Tussen 25 mm en 40 mm lengte (2)

4.3 4.3.1 A – Poot
 B – Kantreling
 C – Blad
 D – Bo-reling
 E – Laaireling
 F – Laaivoorkant (6)

4.3.2 G – Enkelswaelstertvoeg
 H – versteekte tap-en-gatvoeg (vierskouer)
 I – versteekte inkeepvoeg / versteekte tap-en-gatvoeg
 J – Dubbel tap-en-gatvoeg (4)

4.3.3

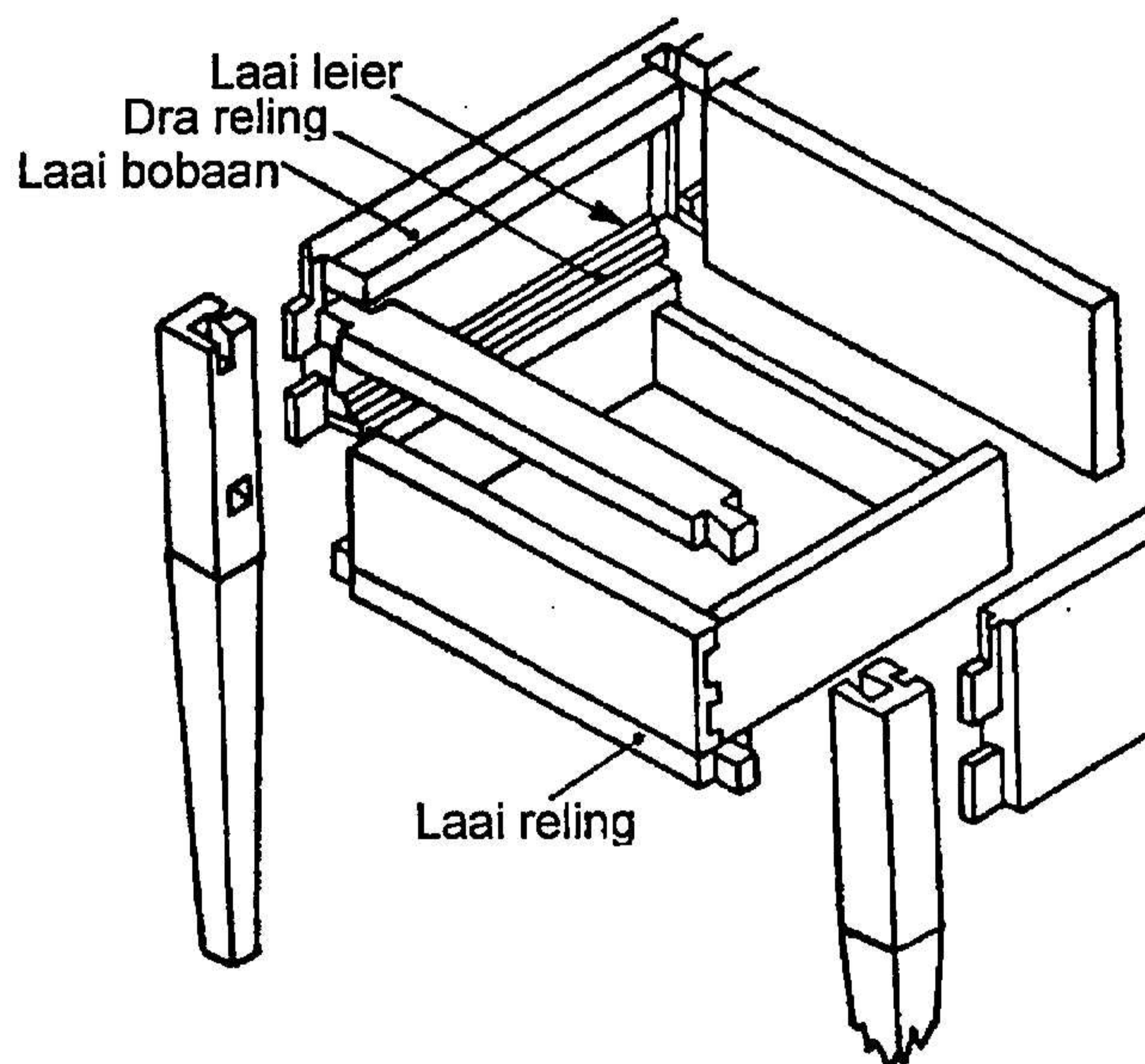


Metaal sponning werwel

Hout sponning werwel

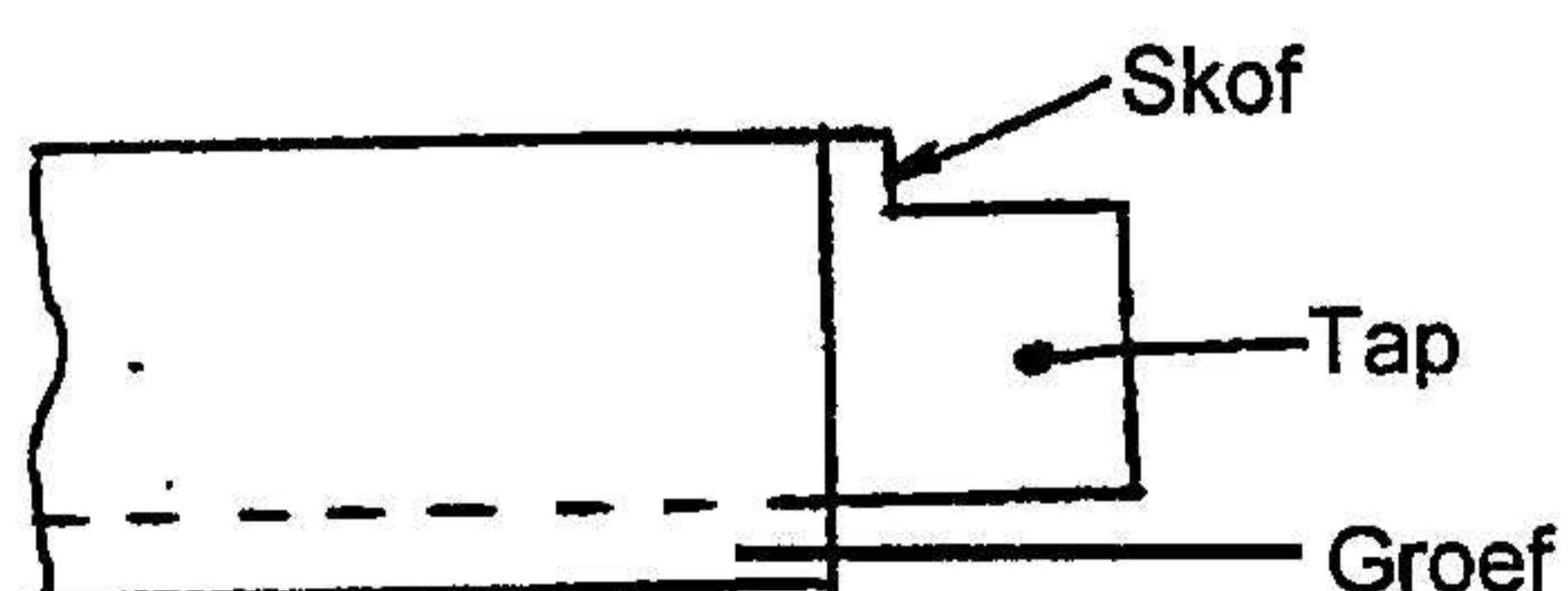
(3)

4.3.4

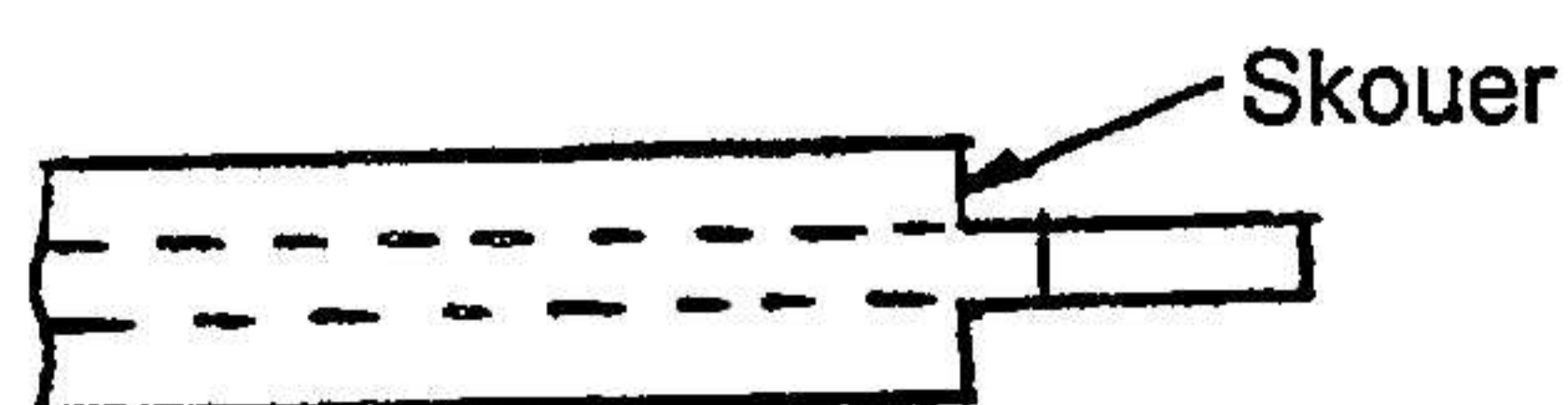


(3)

4.4 4.4.1



(Enige 3)

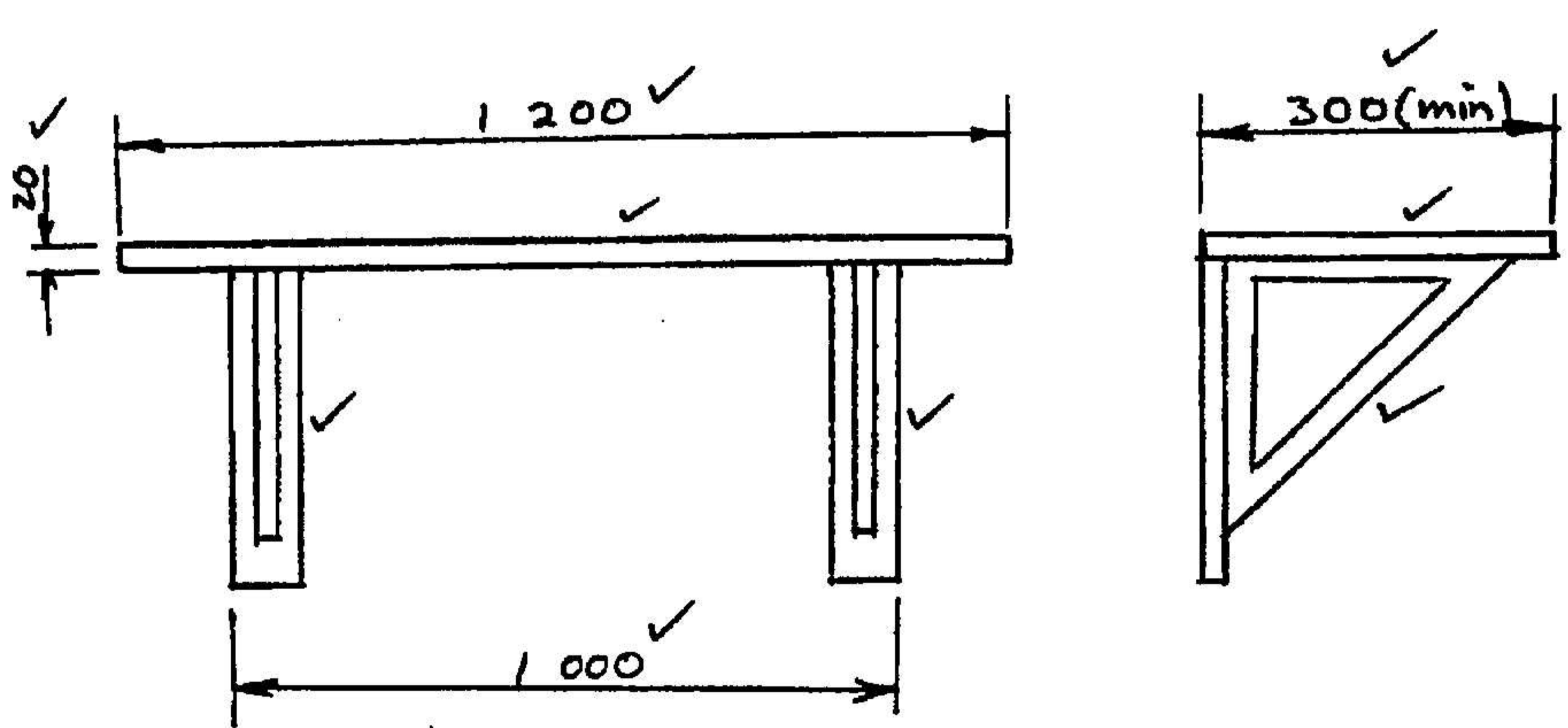


(Slegs skets – 1 punt)

(3)

- 4.4.2 a) 7 mm (1)
 b) 40 mm (1)
 c) 7 mm (1)
- 4.4.3 Die doel van die skof is om die groef te vul sodat daar nie 'n opening ontstaan nie (1)
- 4.4.4 Wanneer die tap in die gat gedruk word, word die lym saamgestoot. Die oortollige lym sal, wanneer die voeg onder drukking geplaas word, die hout laat oopbars. (1)
- 4.4.5 Die paneel word effens kleiner gemaak. / Nee (1)
- 4.4.6 Nee, die paneel word nie gelym nie. Om voorsiening te maak vir uitsetting en inkrimping, sodat die paneel nie later die raam uit mekaar druk nie. (2)
 [40]

VRAAG 5

- 5.1 5.1.1 a) Die anatomie van die menslike liggaan en die reikafstande van die mens word gebruik wanneer artikels en leefruimte vir die mens oorweeg word (1)
- b) Ergonomie (1)
- 5.1.2 a)  (9)
- b) i) Enige bruikbare soliede hout, bv. S.A. den
 of
 Enige bruikbare hout produk, bv. spaander bord.
- ii) Enige bruikbare soliede hout (2)
- c) $\pm 1\ 200$ mm (1)
- d) Muurproppe en skroewe Daar is nog metodes (2)

5.1.3	<u>Hedendaagse meubels</u>	<u>Kaapse meubelstyl</u>
a) <u>Ontwerp:</u>	Baie materiaal & leer Namaaksels	Dekoratief / houtsnee werk
b) <u>Materiaal:</u>	Bord produkte	Soliede hout
c) <u>Konstruksie:</u>	Masjienvervaardig met nuwerwetse hegtingsmetodes	Tradisionele voeë en hegtingsmetodes / Handgemaak
d) <u>Produksie:</u>	Massaproduksie	Lae volumes
e) <u>Afwerking:</u>	Sproeispuut afwerking Sintetiese vernisse Nog verskille is moontlik	was, olie, Fransepolitoer en natuurlike vernis
		(10)

5.2 Verduursaming

5.2.1 Om hout met preserveermiddels te behandel sodat die natuurlike duursaamheid daarvan verhoog kan word. Om hout teen agteruitgang en vernietiging te beskerm. (2)

- 5.2.2
- i) Genoeg vogtigheid
 - ii) Genoeg suurstof
 - iii) Geskikte temperatuur
 - iv) Geskikte voedsel
 - v) Afwesigheid van toksiese chemikalië
- (Enige 4) (4)

5.2.3 b – Ambrosia-kewer (1)

5.2.4 Koolteer kreosote (1)

5.2.5 Hoëdruk proses. (1)

5.3 Afwerking

5.3.1 Indien oortollige lym eers droog is word dit baie moeilik verwyder. Seël die houtsele. Toon vlekke indien gepoleer word. (1)

5.3.2 Beitsing (1)

- 5.3.3
- Waterbeits
 - Olie beits
 - Nie-grein-lygende beits
- (Enige 1) (1)

- 5.3.4
- Vernis is waterbestand
 - Krap nie so maklik nie
 - Is hitte bestand
- (Enige 2) (2)

[40]

TOTAAL: 200÷2=100

EINDE