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higher education & training

Department:
Higher Education and Training
**REPUBLIC OF SOUTH AFRICA**

# MARKING GUIDELINE

## NATIONAL CERTIFICATE

## APRIL EXAMINATION

## WOODWORKERS' THEORY N1

## 24 MARCH 2014

**This marking guideline consists of 6 pages.**

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## QUESTION 1: INTRODUCTION TO THE BUILDING INDUSTRY AND PRODUCTIVITY

1.1 1.1.1 Bricklayer

1.1.2 Joiner

1.1.3 Painter

1.1.4 Plumber

1.1.5 Carpenter

(5 x 1) (5)

1.2 *Productivity* is a process√ where the output√ is more than the input.√ (3)

1.3 *Productivity* = $\frac{\text{output}}{\text{input}}$ √√ (2)

1.4 1.4.1 True
1.4.2 False
1.4.3 False
1.4.4 False
1.4.5 True

(5 x 1) (5)
**[15]**

## QUESTION 2: SAFETY AND HOUSEKEEPING

2.1 Good housekeeping means a proper place for everything and everything in its proper place.√ This makes good financial sense, saves valuable space, reduces incidents and fire risks, and improves workers' morale.√√ (3)

2.2
- Hard hats and helmets to protect your head from falling objects.
- Earplugs and ear muffs for your ears.
- Safety boots, foot protectors and shoes to protect your feet.
- Gloves, mittens and gauntlets for your hands.
- Glasses, goggles, face shields, visors and strengthened prescription lenses for the eyes.
- Face mask, respirators, air-lines breathing apparatus for the lungs.
- Aprons, suits, jackets and overalls for the body.
- Spats, leggings and aprons for the legs.

(Any 3 x 2) (6)

2.3 Paying compensation to workers for industrial accidents, occupational diseases and meeting the medical cost involved.√√ It also strives for the prevention of accidents and the rehabilitation of injured workers. √ (3)

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2.4
- Scaffolding may only be erected, changed, demolished and stored under the supervision of a responsible person.
- Inspection to be done:
  - after erecting and then once a week
  - after inclement weather
- Workspace must be kept clean, planks tightened and level.
- Ends of the planks must have an overhang of min. 150 mm and max. 250 mm on the end supports.
- Scaffold basis must be sturdy and fixed to the ground.
- Tread boards must be in position on both ends.
- Notices must be displayed.
- All workers in the vicinity must wear hard hats.
- Access ladders must be used.
- Tools and equipment must be raised by rope.
- Scaffold boards must be checked regularly. (Any 3 x 1) (3)

**[15]**

## QUESTION 3: TIMBER, TIMBER PRODUCTS, METAL AND GLASS

3.1
- It is caused by too rapid evaporation.
- The external layers dry out and shrink but are prevented from doing so by the wet inner parts.
- As a result of stress the outer layer stretches, becomes hard and mitigates further evaporation. (Any 2 x 1) (2)

3.2 To protect the wood against rotting and fungi attacks√√ (2)

3.3 Softwood trees√ and hardwood trees√ (2)

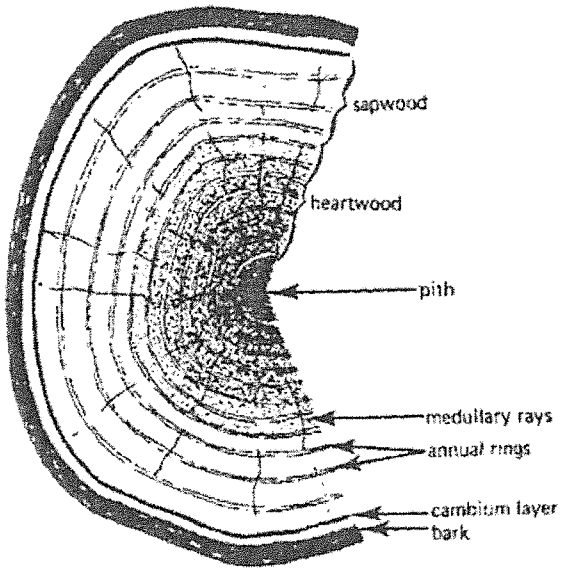
3.4
- A large quantity can be processed at any time.
- It is a cheap method which requires little attention.
- The dying is gradual and does not cause case-hardening.
- This process does not require any expensive building and machinery.
- There is little risk of damaging the wood.
- Wood of all thicknesses can be dried.
- There is no risk of cracking, shrinking and warping. (Any 3 x 1) (3)

3.5
- It consists of many layers of wood, therefore it is much stronger than solid wood of the same thickness.
- It is waterproof. (Any 1 x 1) (1)

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3.6

| MARK ALLOCATION | |
|---|---|
| correct interpretation | 2 |
| neatness | 1 |
| labelling (7x1) | 7 |
| TOTAL | 10 |




(10)
**[20]**

## QUESTION 4: TOOLS AND MACHINES

4.1 4.1.1 Blade

4.1.2 Screws/rivets

4.1.3 Handle

4.1.4 Back

4.1.5 Point

(5 x 1) (5)

4.2 4.2.1 A spirit level is used to check if a surface is horizontally level and vertically plumb.

4.2.2 A tape measure is used for measuring long distances. (3 – 8 metres)

4.2.3 A mitre square is used for marking lines at 90° to the edge of the wood and for testing angles of 45° and 135°.

4.2.4 A G-clamp is used for clamping down of wood to the workbench and to clamp pieces of wood together.

(4 x 1) (4)

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4.3 4.3.1
- See that all attachments are firmly secured.
- Do not overload the machine.
- Wait until the blade has stopped completely before removing the machine from the cutting piece.
- See that the blade is firmly attached to the machine.
- Use the correct blade for its intended purpose.
- See that electric cord is in a good condition and away from the cutting edge. (Any 2 x 1) (2)

4.3.2
- See that all attachments are firmly secured.
- Use machine for its intended purpose.
- Do not put the machine on its side while the blade is still running.
- Do not overload the machine.
- Use the correct blade for its intended purpose.
- See that the cutting blade is firmly attached to the machine.
- See that electric cord is in a good condition and away from the cutting edge. (Any 2 x 1) (2)

4.3.3
- See that all attachments are firmly secured.
- Use machine for its intended purpose.
- Bits must be clamped firmly in the chuck.
- Do not overload the machine by applying too much force.
- See that electric cord is in a good condition. (Any 2 x 1) (2)

**[15]**

## QUESTION 5: FIXATIVES, GLUE AND FITTINGS

5.1
- Screws hold better than nails due to the tread biting into the wood.
- Screws are more decorative.
- Wood is not easily cracked by screws as pilot holes are drilled.
- Screws do not easily crack the wood because it is screwed in and not nailed into the wood.
- It is easier to remove screws than nails. (Any 2 x 1) (2)

5.2
- Tiles
- Veneer
- Plastic on doors
- Edging on built-in cupboards and doors
- Formica to table tops (Any 3 x1) (3)

5.3

| | | | | |
|---|---|---|---|---|
| 5.3.1 | Butt hinge | 5.3.6 | Clout nail | |
| 5.3.2 | Night latch | 5.3.7 | Nail plate connector | |
| 5.3.3 | Parliament hinge | 5.3.8 | Barrel bolt | |
| 5.3.4 | Cylinder lock | 5.3.9 | Roofing screw | |
| 5.3.5 | Rim lock | 5.3.10 | Raised head screw | |

(10 x 1) (10)

**[15]**

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## QUESTION 6: JOINTS

6.1 6.1.1 Haunch mortice and tenon joint

6.1.2 T half-lap joint

6.1.3 Butt joint

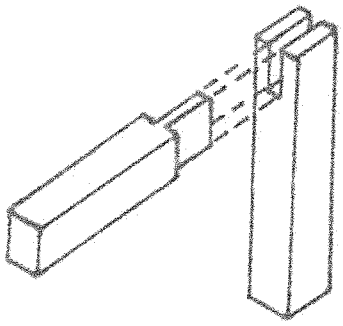
6.1.4 Finger joint

6.1.5 Mitre joint

(5 x 1) (5)

6.2

| MARK ALLOCATION | |
|---|---|
| correct interpretation | 2 |
| drawing of the joint | 2 |
| neatness | 1 |
| TOTAL | 5 |



(5)
**[10]**

## QUESTION 7: BUILDING-RELATED CALCULATIONS

7.1 Percentage moisture = $\frac{\text{wet wood – dry wood}}{\text{dry wood}}$ √

$= \frac{300 - 255}{255}$ √

= 17,64% √ (3)

7.2 Price of unplaned wood = R580, 00
Price to fit the window = R109,80
Machining cost = (R18,00 + R8,50 + R7,50) x 12 = R408,00√√
Total cost = R580,00 + R109,80 + R408,00 = R1097,80√√
Amount profit = R2300,00 - R1097,80 = R1202,20√√
Percentage = 52,26%√ (7)
**[10]**

**TOTAL: 100**

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