



**higher education
& training**

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE

RIGGING THEORY N1

8 AUGUST 2019

This marking guideline consists of 6 pages.

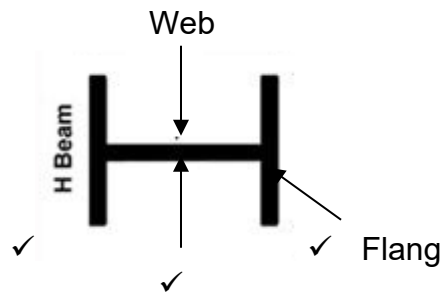
QUESTION 1

- | | | | | |
|-----|--------|-----------------------------------------------------------------------------------------------------------------|----------|-------------|
| 1.1 | 1.1.1 | False | | |
| | 1.1.2 | True | | |
| | 1.1.3 | True | | |
| | 1.1.4 | False | | |
| | 1.1.5 | False | | |
| | 1.1.6 | True | | |
| | 1.1.7 | True | | |
| | 1.1.8 | True | | |
| | 1.1.9 | True | | |
| | 1.1.10 | True | | |
| | | | (10 × 1) | (10) |
| 1.2 | • | Do not tamper with the electricity. | | |
| | • | Do not use the electrical equipment if it is not properly earthed. | (2 × 1) | (2) |
| 1.3 | • | Do not play with compressed air because small items and dust are dangerously accelerated by the compressed air. | | |
| | • | Be aware of hoses running across the floor. | | |
| | • | Do not leave compressed air valves open after use. | (3 × 1) | (3) |
| | | | | [15] |

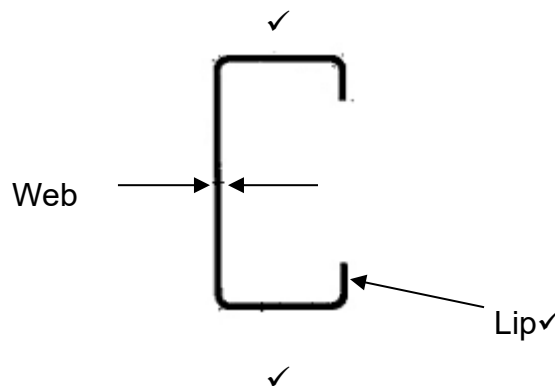
QUESTION 2

- | | | | | |
|-----|-------|----------------------------------------------------|-------------|-----|
| 2.1 | 2.1.1 | Used for cutting off excess steel ropes | | |
| | 2.1.2 | May be used for finishing or wedging a splice | | |
| | 2.1.3 | Used to cut metal while it is cold | | |
| | | | (3 × 2) | (6) |
| 2.2 | • | Brittle | | |
| | • | Relatively weak tension | | |
| | • | Soft because of carbon content present as graphite | | |
| | • | Heavy | | |
| | • | Ability to fracture with shock or bending | (Any 3 × 1) | (3) |

2.3 2.3.1 H-BEAM



2.3.2 LIPPED CHANNEL

(2 × 3) (6)
[15]**QUESTION 3**

- 3.1 3.1.1 Out-riggers scaffolding (1)
- 3.1.2
- The two beams are clamped to the building as shown in the sectional sketch.
 - The platform is mounted on the beams.
 - The hand railings are mounted on the beams.
 - The support beams are mounted to strengthen the scaffolding. (4)
- 3.2 3.2.1 The brace is a diagonal tie to prevent distortion and the collapse of the structure.
- 3.2.2 The bracket of a scaffold is supported by means of ropes passing over the ridge and secured with hooks to the ridge of the roof.
- 3.2.3 The bridle is a horizontal member, between two putlogs, for supporting intermediate putlogs that cannot be supported in the wall, for example at windows openings. (3 × 2) (6)

- 3.3 3.3.1 Widely used on pallets and such like to retard dimensional instability caused by too rapid drying
- 3.3.2 May be diluted and used to protect timber against fungi and vermin, particularly termites
- (2 × 2) (4)
[15]

QUESTION 4

- 4.1 4.1.1 Double-choker sliding hook sling (1)
- 4.1.2 A – Ring
B – Ferrule
C – Sling
D – Sliding hook
E – Loop (5)

- 4.2
-
- (4)

- 4.3 Ropes should be paid out, without slack, from a reel in a straight line to prevent the possibility of kinking or disturbance to the lay of the rope. (3)

- 4.4
- Nylon
 - Orion
 - Fibre-glass
 - Saran
 - Polyester
 - Polypropylene
 - Polyethylene
- (Any 5 × 1) (5)

- 4.5
- Rusts and weakens
 - Loses natural form
 - Becomes brittle and weak
 - Shortened life span
- (Any 2 × 1) (2)
[20]

QUESTION 5

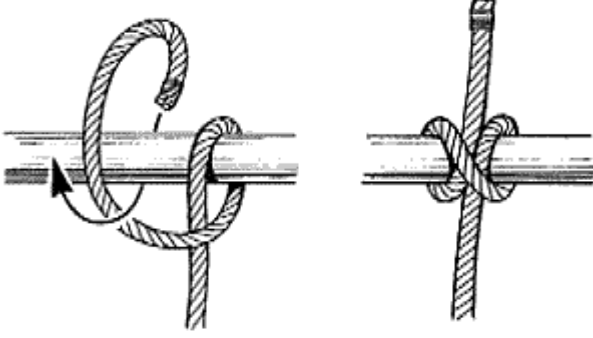
- 5.1 5.1.1 Force = mass × gravity
 = 465 kg × 9,81 m/s²✓
 = 4561,65 N✓✓
- 5.1.2 Work = Force × distance moved
 = 4561,65 N × 150 m✓
 = 684247,5 Nm✓✓
- (2 × 3) (6)
- 5.2 5.2.1 Wire or fibre ropes made into forms with or without fittings for handling loads, permitting the attachment of an operating rope (2)
- 5.2.2 Arrangement of wires helically laid about an axis, or another wire or fibre center to produce a symmetrical section (2)
- 5.2.3 Type of wire rope fitting employing white metal to fix the rope into the basket of the socket (2)
- 5.2.4 Suspended wire rope or strand along which the carrier moves on an aerial conveyor (2)
- 5.2.5 Grooved metal fitting to protect the eye of a wire rope (1)
[15]

QUESTION 6

- 6.1 6.1.1 A – Black
 B – Maroon
 C – Silver or blue (3)
- 6.1.2. A – Right-hand thread
 B – Left-hand thread
 C – Left-hand thread (3)

- 6.1.3 • So that the hose cannot be connected to the wrong bottle
 • Wrong connection may cause an explosion (1)

- 6.2 • Nozzle too close to workpiece
 • Dirty nozzle
 • Incorrect gas mixture
 • Loose nozzle (4)

- 6.3
- 
- Clove Hitch** (3)

- 6.4 6.4.1 The short length at either end of a rope, which may be formed into an eye, or used for making a bend or a hitch with which to secure it. The end of a rope is also that length of rope left over after making such an eye, bend or hitch. The bare end or fag end is the extreme end of a length of rope.

- 6.4.2 Used to fasten two ropes or two parts of the same rope securely together to prevent them moving in relation to each other

- 6.4.3 Light fastening for temporarily holding in place a rope or any other object. Not meant to bear any strain other than that required to keep the rope or other objects in place

(3 × 2) (6)
[20]

TOTAL: 100