higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE

RIGGING THEORY N1

20 April 2021

This marking guideline consists of 5 pages.

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QUESTION 1

1.1
A Use main hoist
B Use hoist hook
C Retract boom
D Lower hook
E Raise boom
F Extend boom
G Stop
H Emergency stop
I Lower boom
J Use whip line (10 × 1) (10)

1.2
- Ensure the gas cylinders are upright and placed against a wall.
- Ensure the gas cylinders are secured by using chains, a firm stand or brackets.
- Ensure that a collar or neck ring is placed over the cylinder valves.
- Always use a suitable trolley with chains, brackets or stands to move gas cylinders.
- Ensure that wire, rope or slings are not used to hang or secure gas cylinders.
- Ensure that proper straps are used to transport cylinders from one point to another. (Any 5 × 1) (5)

[15]

QUESTION 2

2.1 2.1.1
A Half-round file or semicircle round file
B Square file
C Round file
D Flat file
E Triangular file (5)

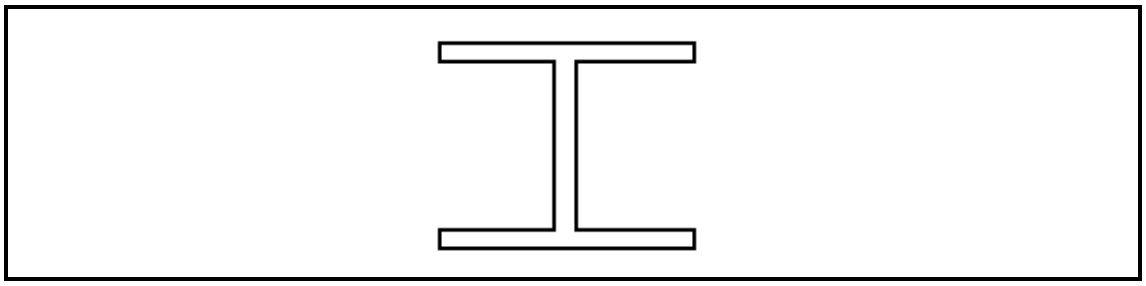
2.1.2
- Half-round file is used for filing large internal round corners.
- Square file is used for filing internal slots or rectangular holes.
- Round file is used to file internal radii as well as to enlarge holes.
- Flat file is used for general purpose work.
- Triangular file is used for filing sharp internal corners.

(5)

2.2 Heat treatment is a process that changes the physical properties of a metal by heating it up and then rapidly cooling it off. (2)

2.3
- Case-hardening
- Normalising
- Annealing
- Tempering
- Hardening (Any 2 × 1) (2)

2.4



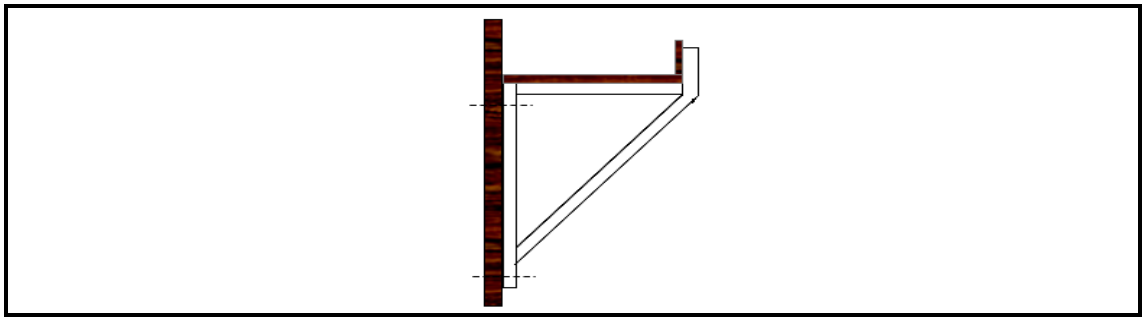
H-BEAM (1)

[15]

QUESTION 3

3.1
A Lateral bracing
B Shackles
C Stopper
D Wire ropes
E Winches
F Beam clamp
G Spacer or block (7 × 1) (7)

3.2



HOP-UP BRACKET (3)

3.3 Bruise means an injury to the wood at or near the surface caused by striking with a hammer or any other object. (2)

3.4
- Oil paint
- Tar
- Water-repellent paint
- Phenol (Any 3 × 1) (3)

[15]

QUESTION 4

4.1 Distance moved in 1 hour = $2{,}45\ km\ \times 10^3$✓ $= 2\ 450\ metres$✓

Distance moved in 1 minute = $\frac{2\ 450}{60}$✓ $= 40{,}833\ metres$✓

Work done to pull in 1 minute = $\frac{1{,}250 \times 10^5}{40{,}833}$✓ $= 3\ 061{,}249\ newton$✓ (6)

4.2 The reel must:
- Be stored in a dry place
- Be kept on pallets to prevent damage from humidity
- Be kept on stands for easy rotation and lubrication of the steel wire rope
- Not be stored on top of any hazardous substances (4)

4.3
- Polyester
- Saran
- Fibreglass
- Nylon
- Polypropylene
- Poly (Any 4 × 1) (4)

4.4
- A visual inspection can be done to check for external corrosion on a steel wire rope.
- Internal corrosion is very unlikely to be seen by doing a visual inspection.
- To carry out an inspection for internal defects, a marlin spike or any other relevant tool should be used to open the rope.
- If there are any defects internally discard the rope immediately by cutting it up. (4)

4.5 Lively rope is a term used to describe the tendency of a rope to uncoil itself and causing difficulty with handling. The rope uncoils itself if the serving is removed from the end. (2)
[20]

QUESTION 5

5.1
A Synthetic web sling
B Double-chain sling
C Double steel wire sling
D Fibre sling (4)

5.2
- To protect its outer surface against wear and chafing.
- To make the outer surface smoother and prevent other ropes from chafing when led over it.
- To protect peoples' hands from sharp ends that are protruding from steel wire ropes. (3)

5.3
- Strands lifted for tucking under are not kinked.
- Strands are not allowed to run forward but are pulled back as far as possible.
- The rope is kept level the whole time and strands are lifted high enough for the tuck to take place.
- The rope itself is not allowed to kink. (Any 3 × 1) (3)

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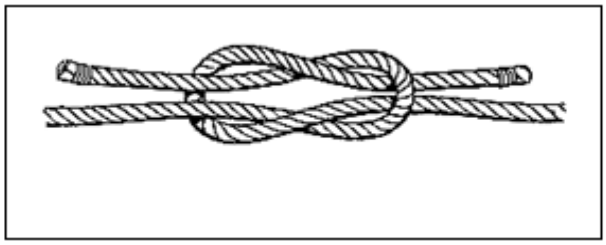
5.4
A Gin block
B D-shackle
C Crosby clamp
D Bow shackle
E Safety swivel hook (5)
[15]

QUESTION 6

6.1
- Becket hitch
- Scaffold hitch
- Rolling hitch
- Halter hitch
- Half-hitch
- Blackwall hitch
- Double-blackwall hitch
- Clove hitch
- Slippery hitch (Any 5 × 1) (5)

6.2



REEF KNOT (3)

6.3
6.3.1 Flashback arrestors are used to prevent flames from entering the hoses and the gas cylinders due to a backfire or flashback.

6.3.2 Gas hoses are used to deliver the gases from the gas cylinders to the torches.

6.3.3 Gas cylinders are used to store the gases at relatively very high pressure.

(3 × 2) (6)

6.4
- Gas cylinders must be stored in a well-ventilated area.
- They must be stored separately.
- The empty cylinders must not be stored with the full cylinders.
- The cylinders must be kept in an upright position.
- The cylinders must be secured with a proper chain or bracket.
- All relevant safety signs must be mounted in the storage area.
- Cylinders must be kept away from heat. (Any 6 × 1) (6)

[20]

TOTAL: 100

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