higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

T1570**(E)**(A10)T
NATIONAL CERTIFICATE

RIGGING THEORY N1

(11041841)

10 April 2018 (X-Paper)
09:00–12:00

This question paper consists of 6 pages.

DEPARTMENT OF HIGHER EDUCATION AND TRAINING
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE
RIGGING THEORY N1
TIME: 3 HOURS
MARKS: 100

INSTRUCTIONS AND INFORMATION

1. Answer ALL the questions.
2. Read ALL the questions carefully.
3. Number the answers according to the numbering system used in this question paper.
4. Keep ALL the subsections of questions together.
5. Drawings should be neat and large enough.
6. Write neatly and legibly.

QUESTION 1

1.1 State SIX safety precautions that must be considered when using an extension ladder. (6)

1.2 Explain the safety and preventative measures that should be taken in case a fire might occur in the workshop during a gas welding or gas cutting process. (2)

1.3 Name THREE elements that should be present before a fire can start. (3)

1.4 State ONE purpose of each of the following personal protective equipment (PPE):

1.4.1 Safety shoes

1.4.2 Safety overall

1.4.3 Safety hard hat

1.4.4 Safety leather gloves

(4 × 1) (4)

[15]

QUESTION 2

2.1 Name FOUR types of marline spikes that are used during the rigging process. (4)

2.2 State ONE purpose of each of the marline spikes mentioned in QUESTION 2.1. (4)

2.3 FIGURE 1 shows different types of steel profiles that are used during rigging. Name the profile of each bar by writing only the answer next to the letter (A–C) in the ANSWER BOOK.

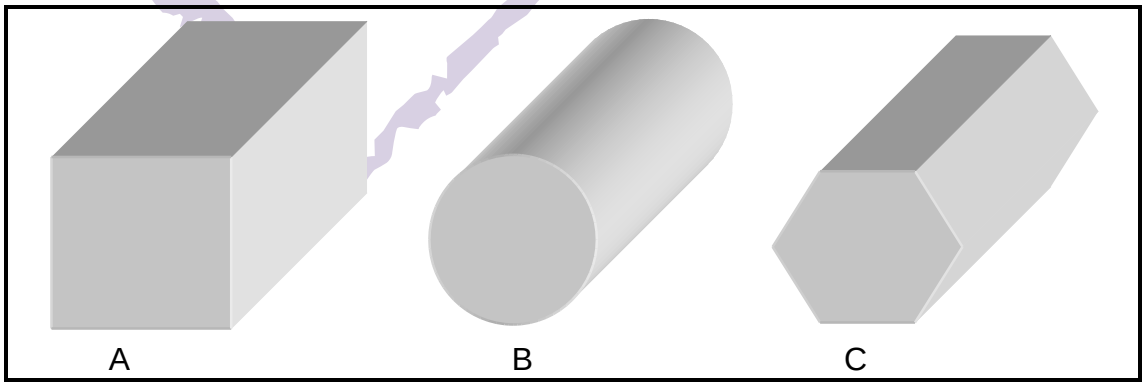

FIGURE 1 (3)

2.4 Define the following terms with regard to heat treatment processes:

2.4.1 Tempering

2.4.2 Flame case-hardening

(2 × 2) (4)
[15]

QUESTION 3

3.1 State the purpose of the following components with regard to scaffolding:

3.1.1 Brace

3.1.2 Bridle

3.1.3 Cradle

3.1.4 Guard rail

(4 × 2) (8)

3.2 Make a neat sketch of a steel base plate used in scaffolding. (2)

3.3 Explain the following terms regarding the inside structure of wood:

3.3.1 Pith rays

3.3.2 Heartwood

(2 × 2) (4)

3.4 Name ONE defect found in timber that cannot be used in scaffolding. (1)
[15]

QUESTION 4

4.1 State FIVE disadvantages of synthetic fibre ropes. (5)

4.2 Explain how you would uncoil a steel rope. (3)

4.3 State FOUR advantages of stirrups fitted with loops used on steel wire ropes. (4)

4.4 Name FIVE permanent finishers for rope ends. (5)

4.5 Name the type of rope used to improve traction on a winch. (1)

4.6 Name TWO types of slings that will give the greatest resistance against crushing. (2)
[20]

QUESTION 5

5.1 FIGURE 2 shows different types of wire rope fittings used in manufacturing slings. Name each rope fitting by writing only the answer next to the letter (A–C) in the ANSWER BOOK.

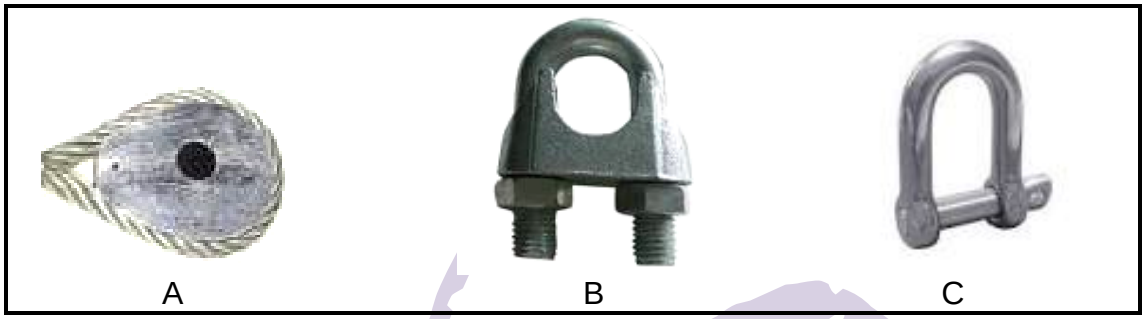

FIGURE 2 (3)

5.2 Make a neat, labelled sketch of a double-leg choker with a sliding hook on a main ring. (4)

5.3 Name THREE types of knots used in ropes. (3)

5.4 Make a neat sketch of a double carrick bend in ropes. (3)

5.5 State the purpose of a clove hitch in ropes. (2)
[15]

QUESTION 6

6.1 FIGURE 3 shows different types of single-leg slings. Name each sling by writing only the answer next to the letter (A–E) in the ANSWER BOOK.

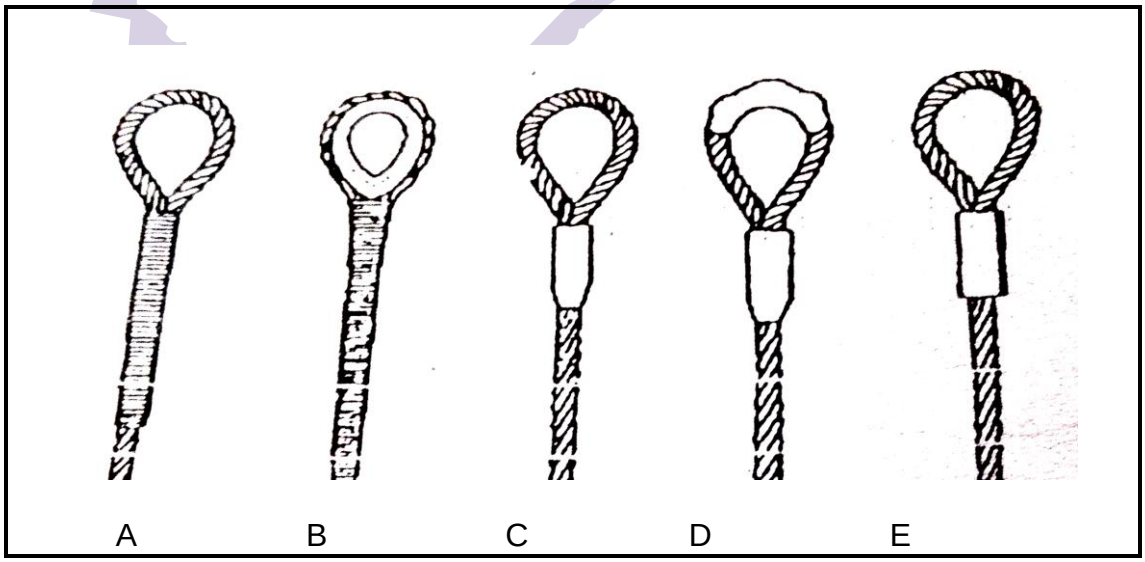

FIGURE 3 (5)

6.2 Name TWO types of flat slings commonly used during the rigging process. (2)

6.3 Explain how a double-part spliced endless sling is joined. (2)

6.4 State the purpose of the following components found on the oxyacetylene equipment that are used during gas welding or gas cutting:

6.4.1 Gas cylinders

6.4.2 Gas hoses

6.4.3 Flashback arresters

(3 × 2) (6)

6.5 Explain step-by-step the shutting-down process of the oxyacetylene gas welder after completion of the task. (5)

[20]

TOTAL: 100