



higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE

BUILDING AND STRUCTURAL SURVEYING N5

16 April 2021

This marking guideline consists of 4 pages.

SECTION A**QUESTION 1**

- 1.1 False✓ The instrument should never be left on the tripod, even for a second.✓
- 1.2 False✓ Never allow the instrument to be manipulated by unskilled hands such as the chainman.✓
- 1.3 True✓ The instrument should be subjected to a minimum of rock shock by putting it in a container during transportation.✓
- 1.4 False✓ Rough treatment or heavy-handedness such as overtightening of clamps, will soon impair its efficiency.✓
- 1.5 False✓ When the instrument is carried, keep it as vertical as possible.✓
- 1.6 True✓ A soft cloth is desirable to avoid scratching out important marks such as graduation.✓
- 1.7 False✓ Clean all exposed parts at least monthly except the lenses to preserve its appearance and clear focus.✓
- 1.8 False✓ Occasionally polish all exposed parts, except lenses and screw threads to preserve it in clear focal and rigid condition.✓
- 1.9 True✓ Growth should not be left too long before the instrument is sent for cleaning.✓
- 1.10 True✓ The lenses should be clear from any mark including finger marks.✓

(10 × 2)

[20]**QUESTION 2**

- 2.1 Determined
- 2.2 Measurements
- 2.3 Points
- 2.4 Corners
- 2.5 Surfaces
- 2.6 Areas
- 2.7 Position
- 2.8 Methods
- 2.9 Whole
- 2.10 Parts

(10 × 1)

[10]

QUESTION 3

- 3.1
- The degree of closeness or conformity of repeated measurements to one another
 - The result of the degree of perfection used in the instruments
 - The methods and the observation
- 3.2
- The degree of conformity or closeness of measurement to the true value
 - The effects of uncorrected systematic errors
 - as well as the effects of accidental errors influence the accuracy obtained.
- 3.3
- Measured slope distances are transformed into their horizontal and vertical components.
 - Only horizontal distances are used for plotting a plan
 - and these horizontal distances, combined with their directions, are transformed into two further components.
- 3.4
- The representation on a map, of a system of equally spaced straight lines, parallel to the Y- and X-axes of the coordinate system,
 - the exact distance of each line from its parent axis that is known.
 - It consists of a system of squares or rectangles of known dimensions.
- 3.5
- They occur according to some system which, when known, can be expressed by some functional relationship.
 - It follows a pattern which will be duplicated if the measurement is repeated under the same condition.
 - The underlying system may depend on the observer, the instrument used and the environmental conditions at the time of measurement.

(5 × 3)

[15]

TOTAL SECTION A:

45

SECTION B

QUESTION 4

- 4.1
- Loosen both plate clamps and rotate the lower plate ✓ until the reading is approximately $215^{\circ} 37'$. ✓
 - Tighten the upper clamp and, by means of the upper plate tangent screw, ✓ set the reading exactly to $215^{\circ} 37' 2''$. ✓ (In the case of micrometre instruments, the fine reading must be preset by means of the micrometre drum.)
 - With the lower plate clamp still loose, rotate the instrument ✓ until the chosen object comes into the field of view of the telescope. ✓
 - Tighten the lower plate clamp and, by means of the lower plate tangent screw, ✓ set the vertical cross hair so that it bisects the object. ✓
 - Check ✓ that the reading is still $215^{\circ} 37' 20''$. ✓
 - Loosen the upper plate clamp ✓ and do not again touch the lower plate clamp or tangent screw. ✓

(6 × 2)

(12)