



**higher education
& training**

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE (VOCATIONAL)

**FITTING AND TURNING
NQF LEVEL 2**

12 MARCH 2019

This marking guideline consists of 5 pages.

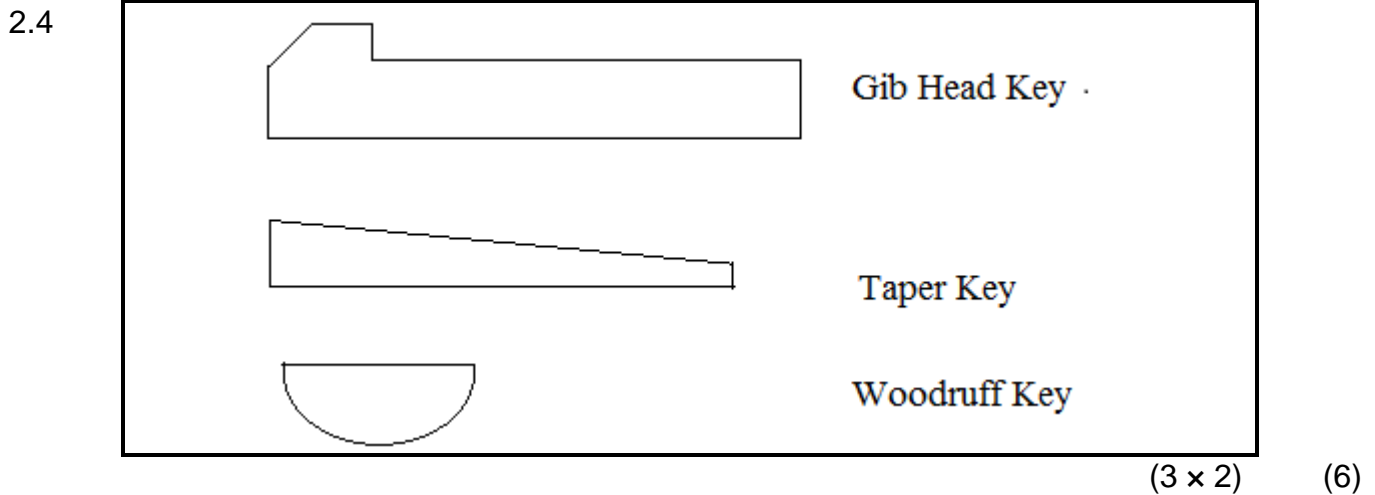
QUESTION 1

- 1.1 1.1.1 A
 1.1.2 B
 1.1.3 B
 1.1.4 A
 1.1.5 A
(5 × 2) (10)
- 1.2 A Shaft
 B Plastic bushes
 C Blotting paper
 D Nut
 E Outer flange
(5 × 1) (5)
- 1.3 • Clean taps after use.
 • Store taps in a container after use.
 • Clean the tapping fluid from the workbench or floor.
 • Ensure that metal shavings are cleaned and thrown in the metal-scrap bin.
 • Use the correct tools for the job. (Any relevant 5 × 1) (5)
- 1.4 • Reduces friction
 • Cools workpiece
 • Cools cutting tool
 • Prevents rust
 • Washes away iron chips from workpiece
 • Improves surface finish
 • Helps dissipate high heat caused by friction
 • Extends life of cutting tool
 • Prevents build-up of material on cutting surface (Any relevant 5 × 1) (5)
[25]

QUESTION 2

- 2.1 A Spindle motor
 B Speed and feed gearbox
 C Horizontal movement steering
 D Base
 E Pillar
 F Elevating screw
 G Elevating motor
(7 × 1) (7)
- 2.2 D = 30 mm S = 50 m/min N = ?
 $S = \pi \times D \times N$ ✓
 $N = 50/\pi \times 30$ ✓✓
 = 0,5307 r/min ✓✓
(5)

- 2.3
- Check that the drive belts are in position and not damaged.
 - Make sure that the power supply is secure and in the ON position.
 - Ensure that the belt guard is closed.
 - Check for the correct operation of the feed spindle.
 - Make sure that the table can move freely and can lock.
- (Any relevant 5 × 1) (5)



- 2.5
- Thread-cutting screw
 - Self-cutting screw
 - Drive screw
- (Any relevant 2 × 1) (2)
[25]

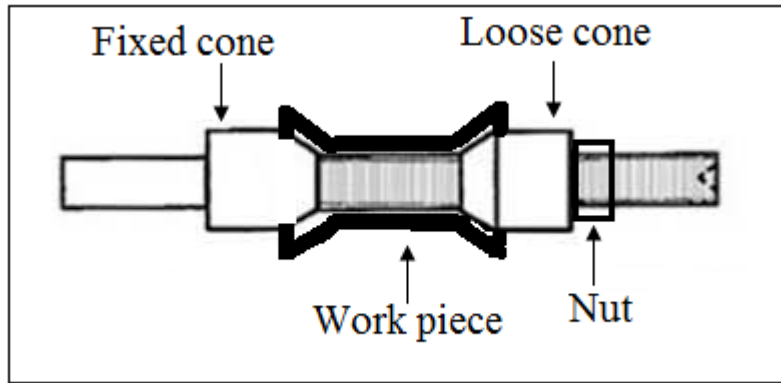
QUESTION 3

- 3.1
- | | | |
|-------|-------|--|
| 3.1.1 | False | |
| 3.1.2 | True | |
| 3.1.3 | True | |
| 3.1.4 | False | |
| 3.1.5 | False | |
- (5 × 1) (5)

3.2 Manual feed occurs when the operator of the lathe physically ✓ makes adjustments while turning. Manual feed takes time ✓ and the material removed leaves a rough and uneven surface/finish. ✓ When the automatic feed is selected the machine makes adjustments automatically. ✓ Automatic feed is quicker and the finish is more even and smooth. ✓ (5)

- 3.3
- The setting time of the workpiece is time consuming.
 - The chuck is heavy to mount on the lathe.
 - The chuck is bulky.
 - The strong gripping force of the jaws can damage workpieces.
 - The chuck is difficult to set up, thus a dial-test indicator (DTI) must be used for accurate setting.
- (5)

3.4 Double-cone mandrel



(1 for mark + 4 for labelling) (5)

- 3.5
- The workpiece can get loose from the chuck.
 - The cutting tool may break or become blunt.
 - There might be play between the slides.
 - There might be a lack of coolant.
 - The centre hole may wear out.

(Any relevant 5 × 1) (5)
[25]

QUESTION 4

- 4.1
- | | |
|-------|---|
| 4.1.1 | D |
| 4.1.2 | E |
| 4.1.3 | A |
| 4.1.4 | F |
| 4.1.5 | B |
| 4.1.6 | G |
| 4.1.7 | C |
| 4.1.8 | H |

(8 × 1) (8)

- 4.2
- Eye protection
 - Hairnet
 - Gloves/Hand protection
 - Suitable overalls
 - SABS-approved safety boots

(Any relevant 5 × 1) (5)

- 4.3
- Speed
 - Condition of machine
 - Type of material being machined
 - Condition of material
 - Type of cutting tool

(Any relevant 5 × 1) (5)

- 4.4
- Ensure that there is an adequate supply of coolant.
 - Make sure that the speed and feed is correct.
 - Check that the workpiece is secure during cutting.
 - Ensure that the cutting tips are sharp.
 - When using automatic feed, ensure that the table trips are in position.
- (Any relevant 5 × 1) (5)
- 4.5 The roughing cut is the first cut. Excessive material is removed and the workpiece is brought close to the required size.
- (Any relevant answer) (2)
- [25]**
- TOTAL: 100**