



higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

FITTING AND TURNING NQF LEVEL 2

(6011042)

**10 March 2022 (Y-paper)
13:00–16:00**

Non-programmable calculators may be used.


This question paper consists of 7 pages.

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. Start each question on a new page.
 5. Write neatly and legibly.
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QUESTION 1


1.1 Various options are given as possible answers to the following questions. Choose the answer and write only the letter (A–D) next to the question number (1.1.1–1.1.10) in the ANSWER BOOK. 

1.1.1 Effect of poor housekeeping:

- A Tripping over loose objects on floors
- B Being hit by falling objects
- C Slipping on greasy floors
- D All of the above


1.1.2 Benefit of good housekeeping:

- A Decrease in fire hazards
- B Better control of tools and materials
- C Effective use of storing space
- D All of the above

1.1.3 According to the Occupational Health and Safety (OHS) Act, safety is the responsibility of the ... 

- A employer.
- B employee.
- C employer and the employee.
- D None of the above


1.1.4 Personal protective equipment (PPE) that should be worn when grinding:

- A Safety glasses
- B Overalls
- C Safety boots
- D All of the above 

1.1.5 A ... is used to tap a grinding wheel when performing a ring test.

- A metallic object
- B nonmetallic object
- C hammer
- D None of the above

1.1.6 Grinding wheels can be identified according to ...

- A abrasive type.
- B grade.
- C rotational speed.
- D All of the above 

- 1.1.7 An external thread ...
- A threads on the outside of a shaft.
 - B threads on the inside of a bush.
 - C threads on a nut.
 - D None of the above
- 1.1.8 The major diameter of a screw thread is the ...
- A largest diameter.
 - B smallest diameter.
 - C bottom of the thread.
 - D None of the above
- 1.1.9 The crest of a thread is the ...
- A bottom of a thread.
 - B sides of a thread.
 - C top of a thread.
 - D None of the above
- 1.1.10 The second tap used when forming threads:
- A Taper tap
 - B Intermediate tap
 - C Plug tap
 - D None of the above

(10 × 1) (10)

1.2 List FIVE factors to consider when selecting a grinding wheel. (5)

1.3 A grinding wheel has a rotational speed of 1 540 r/min and a surface speed of 1 450 m/min.

Calculate the diameter of the grinding wheel in millimetres. (5)

1.4 FIGURE 1 shows a stock and die set.



FIGURE 1

Explain the procedure to follow when cutting external threads using a stock and die.



(5)
[25]

QUESTION 2

2.1 FIGURE 2 shows a sensitive drilling machine.

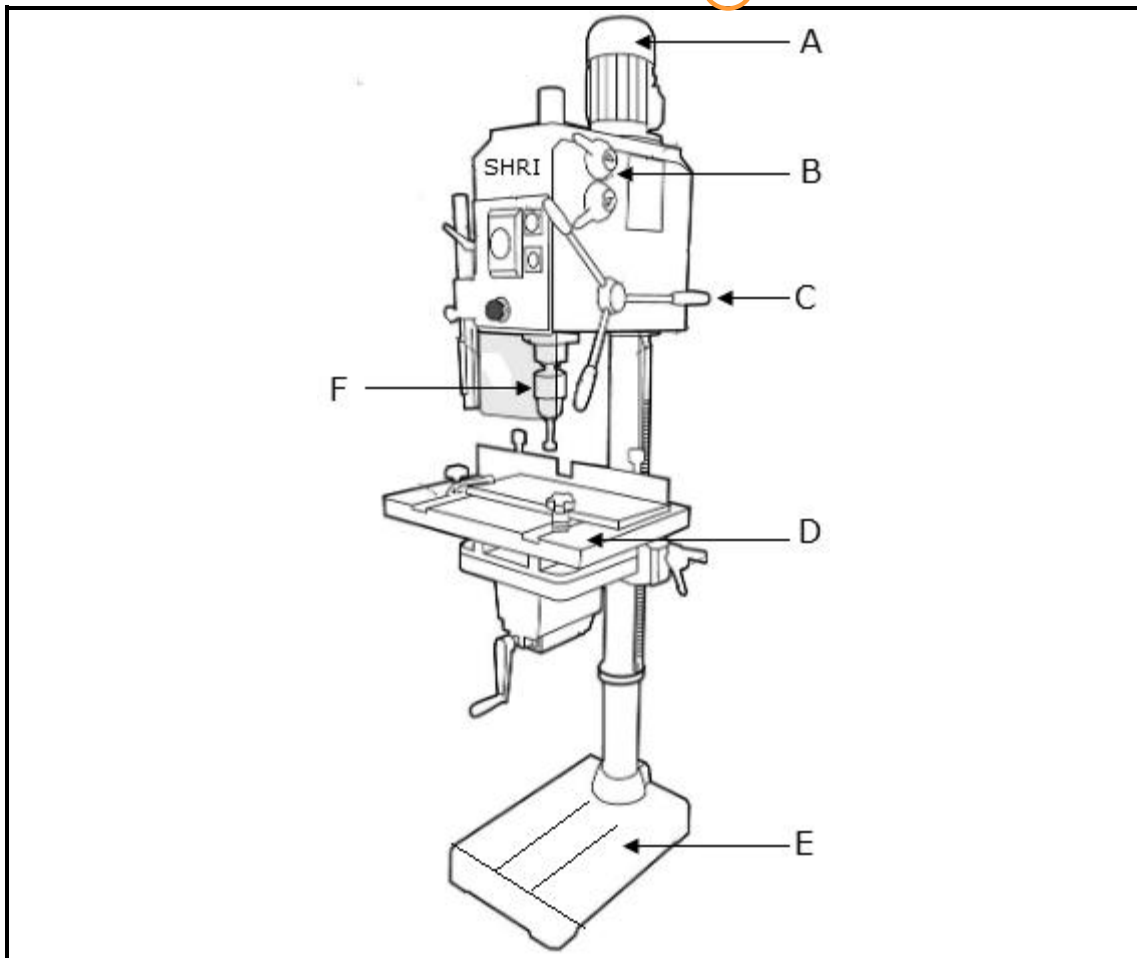


FIGURE 2

Label the components by writing only the answer next to the letter (A–F) in the ANSWER BOOK. (6 × 1)

2.2 List FIVE clamping methods used to hold workpieces securely in position while drilling. (5)

2.3 List FOUR critical checks to do after drilling. (4)

2.4 Draw a neat sketch showing a key located in a shaft preventing a coupling from turning. (5)

2.5 Name FIVE types of keys used as locking devices. (5)

[25]

QUESTION 3

3.1 List FIVE safety precautions to adhere to when working on a centre lathe. (5)

3.2 FIGURE 3 shows a centre lathe.

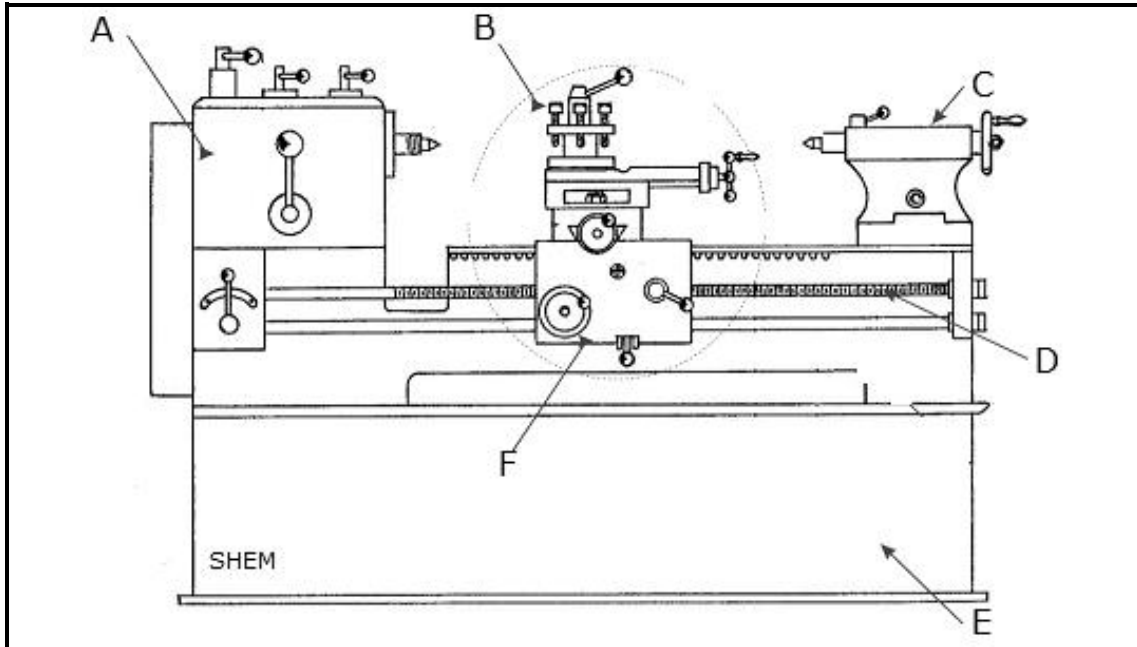


FIGURE 3

Label the components by writing only the answer next to the letter (A–F) in the ANSWER BOOK. (6 x 1) (6)

3.3 List FIVE operations that can be performed on a centre lathe. (5)

3.4 Explain how to set up the height on a cutting tool. (6)

3.5 Give THREE advantages of a three-jaw chuck. (3)

[25]

QUESTION 4

4.1 Name FIVE components found on a milling machine. (5)

4.2 FIGURE 4 shows different milling cutters.

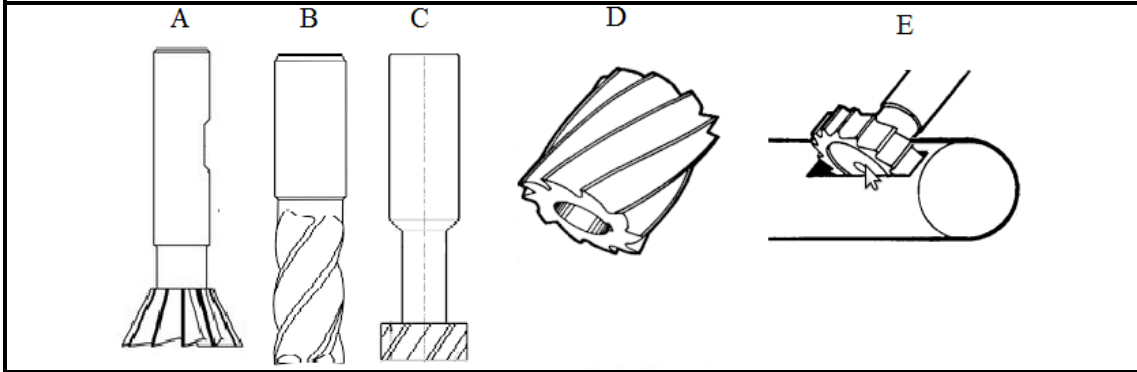


FIGURE 4

Name the cutters by writing only the answer next to the letter (A–E) in the ANSWER BOOK. (5 x 1) (5)

4.3 FIGURE 5 shows a workpiece with a tolerance.

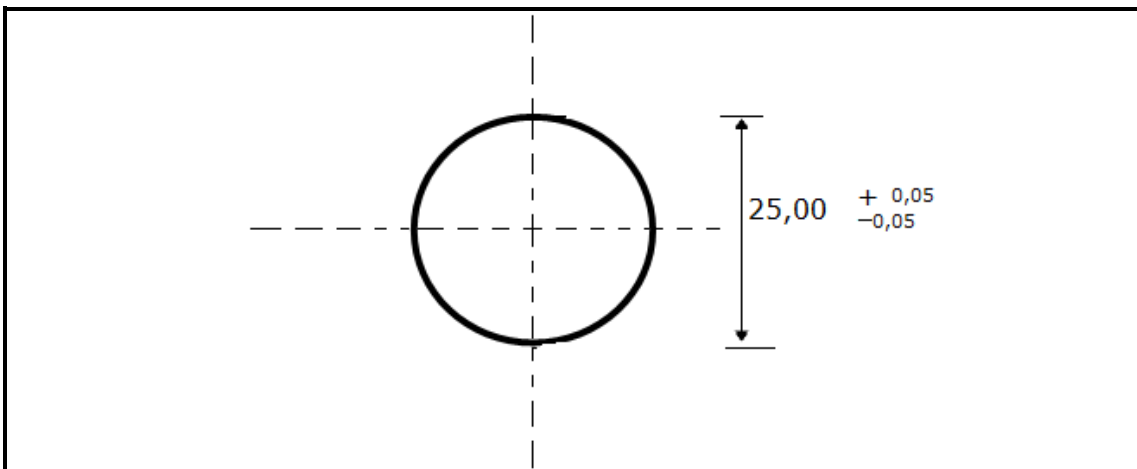


FIGURE 5

Explain the tolerance. (5)

4.4 Give FIVE factors to consider when selecting the cutting feed on a milling machine. (5)

4.5 List FIVE malfunctions that can occur while machining a workpiece on a milling machine. (5)

[25]

TOTAL: 100