# Knowledge Assessment

**Event 1 of 3**

## Criteria

### Unit code, name and release number

MEM07032 - Use workshop machines for basic operations (1)

### Qualification/Course code, name and release number

MEM10119 – Certificate 1 in Engineering (1)

## Student details

### Student number

### Student name

## Assessment Declaration

* This assessment is my original work and no part of it has been copied from any other source except where due acknowledgement is made.
* No part of this assessment has been written for me by any other person except where such collaboration has been authorised by the assessor concerned.
* I understand that plagiarism is the presentation of the work, idea or creation of another person as though it is your own. Plagiarism occurs when the origin of the material used is not appropriately cited. No part of this assessment is plagiarised.

### Student signature and Date

Version: *1.0*

Date created: *6 July 2018*

Date modified: *17/02/2020*

For queries, please contact:

*IMRS SkillsPoint*

*Block B Level 1*

*Hamilton Campus Newcastle*

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## Assessment instructions

Table 1 Assessment instructions

| Assessment details | Instructions |
| --- | --- |
| **Assessment overview** | The objective of this assessment is to assess your knowledge as would be required to be deemed satisfactory in meeting the necessary requirements as stated in the Unit Assessment Guide for MEM07032 Use workshop machines for basic operations |
| **Assessment Event number** | 1 of 3 |
| **Instructions for this assessment** | This is a written assessment and it will be assessing you on your knowledge of the unit.  This assessment is in 4 parts:   1. Multiple choice questions 2. True or False questions 3. Short answer questions 4. Assessment feedback |
| **Submission instructions** | On completion of this assessment, you are required to upload it or hand it to your trainer for marking.  Ensure you have written your name at the bottom of each page of this assessment.  It is important that you keep a copy of all electronic and hardcopy assessments submitted to TAFE and complete the assessment declaration when submitting the assessment. |
| **What do I need to do to achieve a satisfactory result?** | To achieve a satisfactory result for this assessment all questions must be answered correctly. |
| **What do I need to provide?** | Calculator, pens |
| **What the assessor will provide?** | Classroom suitable for conducting a written assessment |
| **Due date and time allowed** | *Due date TBA*  Time allowed 1 hour |
| **Supervision** | This assessment may take place in the classroom.  The student may access their referenced text, learning notes and other resources. |
| **Assessment feedback, review or appeals** | In accordance with the TAFE NSW policy *Manage Assessment Appeals,* all students have the right to appeal an assessment decision in relation to how the assessment was conducted and the outcome of the assessment. Appeals must be lodged within **14 working days** of the formal notification of the result of the assessment.  If you would like to request a review of your results or if you have any concerns about your results, contact your Teacher or Head Teacher. If they are unavailable, contact the Student Administration Officer.  Contact your Head Teacher for the assessment appeals procedures at your college/campus. |

## Part 1: Multiple choice

Read the question and each answer carefully. Put an X in the table next to your chosen answer.

1. What safe work place should be followed when operating a lathe?

Table 1: Multiple choice

| Answer choices | Put X next to your answer |
| --- | --- |
| 1. Know where the E stop is positioned |  |
| 1. Be wary of coolant on the floor |  |
| 1. Do not wear loose clothing when operating the lathe |  |
| 1. All of the above |  |

1. What should you do if a machine stalls during a machining operation?

Table 2: Multiple choice

| Answer choices | Put X next to your answer |
| --- | --- |
| 1. Disengage feed, retract the tool, stop machine, check tool and cutting conditions, check job security, and reduce depth of cut before restarting |  |
| 1. Disengage feed and restart cut |  |
| 1. Remove tool from work piece increase the RPM and restart cutting |  |
| 1. Leave tool in position, Increase speed and feed and restart cutting |  |

1. Insufficient clearance angles on cutting tools will cause the tools to:

Table 3: Multiple choice

| Answer choices | Put X next to your answer |
| --- | --- |
| 1. Dig into the work piece |  |
| 1. Rub on the work piece |  |
| 1. Make shavings curl |  |
| 1. Weaken the job |  |

1. A pedestal or bench grinder is used when sharpening cutting tools. If a grinding wheel on the grinder is ‘glazed’ what has occurred?

Table 4: Multiple choice

| Answer choices | Put X next to your answer |
| --- | --- |
| 1. Particles of the work material are stuck to the cutting surface |  |
| 1. The abrasive grains are blunt |  |
| 1. The grinding surface has become grooved |  |
| 1. The users eyes are protected by a glass shield |  |

1. What are the consequences of **not** maintaining a sharp cutting edge on a lathe tool or HSS drill?

Table 5: Multiple choice

| Answer choices | Put X next to your answer |
| --- | --- |
| 1. Build-up of heat |  |
| 1. Poor surface finish |  |
| 1. Shorter tool life |  |
| 1. All of the above |  |

1. Calculate the drill speed in RPM to drill a Ø24 hole in a piece of cast iron at a velocity of 18 m/min. Use the formula:   
   RPM = 

Table 6: Multiple choice

| Answer choices | Put X next to your answer |
| --- | --- |
| 1. 600 RPM |  |
| 1. 150 RPM |  |
| 1. 225 RPM |  |
| 1. 160 RPM |  |

1. Calculate the RPM to turn a piece of mild steel Ø50 at 90 m/min. Use the formula:

RPM = 

Table 7: Multiple choice

| Answer choices | Put X next to your answer |
| --- | --- |
| 1. 450 RPM |  |
| 1. 540 RPM |  |
| 1. 610 RPM |  |
| 1. 820 RPM |  |

1. You are turning the outside diameter of a shaft to a tolerance size of Ø50.00 ±0.10 mm. What measuring instrument would you use to measure the 50mm diameter?

Table 8: Multiple choice

| Answer choices | Put X next to your answer |
| --- | --- |
| 1. 150mm rule |  |
| 1. 25 – 50 Micrometer |  |
| 1. 50 – 75mm Micrometer |  |
| 1. Vernier height gauge |  |

1. When grinding a tool high temperatures must be avoided to damage to the tool edge. How can high temperatures be avoided?

Table 9: Multiple choice

| Answer choices | Put X next to your answer |
| --- | --- |
| 1. Dipping the tool in water before it becomes overheated |  |
| 1. Using moderate pressure when grinding |  |
| 1. Moving the tool back and forth across the face of the wheel |  |
| 1. All of the above |  |

1. Securely clamping the workpiece is essential in preventing movement to have the ability to resist cutting forces. Movement of the workpiece can result in:

Table 10: Multiple choice

| Answer choices | Put X next to your answer |
| --- | --- |
| 1. Injury to the operator |  |
| 1. Damage to the machine |  |
| 1. Breakage of the cutting tool |  |
| 1. Spoiling of the workpiece |  |
| 1. All of the above |  |

1. Excessive drill feed can result in? Select three (3)

Table 11: Multiple choice

| Answer choices | Put X next to your answer |
| --- | --- |
| 1. Poor finish in and around the hole |  |
| 1. Lack of chips being produced |  |
| 1. Broken drill |  |
| 1. Chipping of the cutting edge |  |

1. When sharpening tools on a pedestal grinder what is the recommended gap between the tool rest and the grinding wheel?

Table 12: Multiple choice

| Answer choices | Put X next to your answer |
| --- | --- |
| 1. 1-2 mm |  |
| 1. 3-4 mm |  |
| 1. 5-6 mm |  |
| 1. 9-10 mm |  |

## Part 2: True or false

Read the question and then write **True** or **False** in the space provided.

Table 1: True or false

| Question | Write *True* or *False* |
| --- | --- |
| 1. Never leave a 3 or 4 jaw chuck key in the chuck |  |
| 2. Never attempt to measure a part on a lathe while the spindle is turning |  |
| 3. Never change the speed on a machine while it is running unless it is equipped with a variable speed drive motor |  |
| 4. Offhand grinding machines are the most suitable tool to sharpening HSS tools and bits |  |
| 5. It is recommended that leather gloves are worn when sharpening machine tools on pedestal grinders to prevent hot pieces metal burning your fingers |  |
| 6. Excessive drill speed causes breaks on outer corners of a drill |  |
| 7. Cutting speed that is too low can lead to a built up edge on drills and cutting tools |  |

## Part 3: Short answer

Read the question carefully. Your answer should be a minimum of 1 word but no longer than 50 words.

1. Name two (2) PPE items you should wear when using machines.

a)

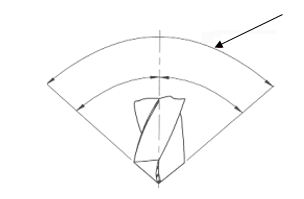
b)

1. Removing swarf from a workshop machine should be performed correctly and safely. List two (2) tools that you can use to remove it.

a)

b)

1. What is the included angle, referred to in the diagram for sharpening a drill? **Note: to drill mild steel**

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1. Identify and match the letter on the illustrations below with the list of tool angle geometry applications

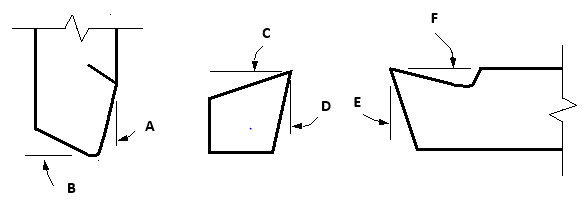
Table 1: Tool Geometry

|  |  |  |
| --- | --- | --- |
| Tool Geometry | Letter |  |
| Parting off/grooving tool |  |  |
| Screw cutting tool |  |
| RH turning tool |  |
| LH turning tool |  |

1. The following illustrations show the clearance angles when grinding a right hand lathe tool. Complete the table by matching the clearance angles with the appropriate letter. **Note:** Letters A, C and F have been supplied as an example

Table 2: Clearance Angles

|  |  |
| --- | --- |
| Clearance angle | Letter |
| Approach angle | **A** |
| Front Clearance angle |  |
| Trail angle |  |
| Side Rake angle | **C** |
| Side clearance angle |  |
| Back Rake | **F** |

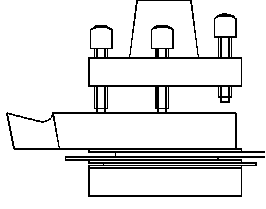


1. List three (3) improvements which should be made to the tool clamping shown below

a)

b)

c)



1. If you continued to run the machine with the tool set up as per the diagram in Question 6 the tool would vibrate and chatter. List a consequence to address the issues of vibration and chatter on the job and tooling?

a) Chatter

b) Vibration

1. Name 3 adjustments that can be made to the operation of a Radial arm drill

a)

b)

c)

1. When working on a Radial Arm Drill the workpiece must be securely clamped and accurately positioned. What are three (3) methods of clamping the workpiece?

a)

b)

c)

1. The following table is a procedure for operating workshop machines. Complete the table by placing a letter next to the corresponding step in the procedure. **Note:** Steps A and G have been supplied as an example.

Table 3: Operating Procedure

|  |  |
| --- | --- |
| Operating Procedure | Step |
| Securely clamp and accurately locate cutting tool |  |
| Locate ‘E’ stop and check function | **A** |
| Calculate and set cutting speeds and feeds |  |
| Locate forward/ reverse function |  |
| Locate stop/start function |  |
| Securely clamp and pack workpiece using parallel strips or similar |  |
| Ensure all guards and locking devices are in place | **G** |

## Part 4: Assessment Feedback

*NOTE: This section* ***must*** *have the assessor signature and student signature to complete the feedback.*

### Assessment outcome – Knowledge Assessment

**Event 1 of 3**

Satisfactory

Unsatisfactory

### Assessor Feedback

Has the Assessment Declaration on page 1 of the assessment been signed and dated by the student?

☐ Are you assured that the evidence presented for assessment is the student’s own work?

Was the assessment event successfully completed?

If no, was the resubmission/re-assessment successfully completed?

Was reasonable adjustment in place for this assessment event?  
*If yes, ensure it is detailed on the assessment document.*

Comments:

### Assessor name, signature and date:

### Student acknowledgement of assessment outcome

Would you like to make any comments about this assessment?

### Student name, signature and date

***NOTE: Make sure you have written your name at the bottom of each page of your submission before attaching the cover sheet and submitting to your assessor for marking.***