# Knowledge Assessment

**Assessment event 1 of 3**

## Criteria

### Unit code, name and release number

MSL933006 - Contribute to the achievement of quality objectives (1)

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

MSL30118 - Certificate III in Laboratory Skills (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 my 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: 15/08/2019

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For queries, please contact:

Innovative Manufacturing, Robotics and Science SkillsPoint

Hamilton Campus

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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 contribute to the achievement of quality objectives in your workplace |
| **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 has 4 Parts:   1. Multiple choice questions (Questions 1 – 15) 2. True or False questions (Questions 16 – 25) 3. Short answer questions (Questions 26 – 38) 4. Assessment feedback |
| **Submission instructions** | On completion of this assessment, you are required to upload it or hand it to your trainer for marking.  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, pencils, ruler |
| **Due date/time allowed** | 2 hours |
| **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. |

## 1: Multiple choice (Questions 1 – 15)

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

1. Which of the following is an indication of quality?

Table 2 Multiple choice

| Answer choices | Put X next to your answer |
| --- | --- |
| 1. Meeting specifications |  |
| 1. Value for money |  |
| 1. Detecting and removing defects |  |
| 1. All of the above |  |

1. Continuous improvement has a number of benefits including:

Table 3 Multiple choice

| Answer choices | Put X next to your answer |
| --- | --- |
| 1. a reduction in wasted time and materials |  |
| 1. greater staff motivation to perform at their best |  |
| 1. continued customer satisfaction leading to repeat business |  |
| 1. all of the above |  |

1. Which of the statements below would you NOT expect to find in your organisation’s Code of Ethics?

Table 4 Multiple choice

| Answer choices | Put X next to your answer |
| --- | --- |
| 1. Act honestly in all dealings with customers and other employees |  |
| 1. Maintain confidentiality of laboratory procedures and results |  |
| 1. Professional behaviour only applies during working hours |  |
| 1. Avoid taking unnecessary risks that may cause harm to yourself or others |  |

1. Staff training is required within an organisation to:

Table 5 Multiple choice

| Answer choices | Put X next to your answer |
| --- | --- |
| 1. provide upskilling of workers |  |
| 1. ensure continuous improvement |  |
| 1. commission new equipment or processes |  |
| 1. all the above |  |

1. Which of the following would **not** be an appropriate reaction to a customer complaint?

Table 6 Multiple choice

| Answer choices | Put X next to your answer |
| --- | --- |
| 1. Staying calm |  |
| 1. Being abusive in response to the complaint |  |
| 1. Negotiating a solution to the problem |  |
| 1. Taking responsibility to file and report the problem |  |

1. Which of the following is a reason for trying to minimise waste?

Table 7 Multiple choice

| Answer choices | Put X next to your answer |
| --- | --- |
| 1. Reducing potential environmental damage |  |
| 1. To meet regulations for effluent quality |  |
| 1. Reduce the cost to the business of waste disposal |  |
| 1. All of the above |  |

1. Which of the following would **not** be considered to be part of a professional development program for a worker in a laboratory/field testing role?

Table 8 Multiple choice

| Answer choices | Put X next to your answer |
| --- | --- |
| 1. Informal on-the-job training, buddying with a more experienced technician |  |
| 1. Formal off-the-job structured course around new instrumentation |  |
| 1. Structured self-paced on-line course work related to particular processes in your job role |  |
| 1. Attendance at a seminar that does not relate to the laboratory area |  |

1. A performance review provides the employee with an opportunity to:

Table 9 Multiple choice

| Answer choices | Put X next to your answer |
| --- | --- |
| 1. establish personal goals that will fit in with organisational values and standards |  |
| 1. plan the next vacation |  |
| 1. inform the employer that they will not be participating in any more training |  |
| 1. take leave if expectations are too high |  |

1. Data can be used to monitor variations in a process and also to make improvements in a process. For data to be useful it must be:

Table 10 Multiple choice

| Answer choices | Put X next to your answer |
| --- | --- |
| 1. relevant and reliable |  |
| 1. representative |  |
| 1. readable |  |
| 1. all of the above |  |

1. Which of the following would be considered appropriate behaviour if you take a customer complaint by phone?

Table 11 Multiple choice

| Answer choices | Put X next to your answer |
| --- | --- |
| 1. Listen carefully and take notes on the call |  |
| 1. Don’t get into an argument or be abusive |  |
| 1. Take responsibility for seeing that the issue is resolved |  |
| 1. All the above |  |

 

W X

 

Y Z

Identify the process run charts above which show in order:

* A stable process running fairly constantly
* The process showing recuring cycles of high, medium to low results
* The process is jumping from highs to lows
* The process is heading out of control

Table 12 Multiple choice

| Answer choices | Put X next to your answer |
| --- | --- |
| 1. Z, W, X, Y |  |
| 1. Z, X, W, Y |  |
| 1. X, Y, Z, W |  |
| 1. Z, Y, W, X |  |

1. ‘Right first time’ is about:

Table 13 Multiple choice

| Answer choices | Put X next to your answer |
| --- | --- |
| 1. effective planning |  |
| 1. organisation |  |
| 1. minimising mistakes and errors |  |
| 1. all of the above |  |

1. AllSci laboratory runs daily microbiology tests on the city water supply. E.coli are used as a measure of faecal contamination of the water supply. The specification is 10 ± 1 colonies/1 mL water maximum. The following table shows results from samples collected from eight locations.

|  |  |
| --- | --- |
| **Location** | **E Coli/ 1 mL water** |
| 1 | 25 |
| 2 | 3 |
| 3 | 9 |
| 4 | 11 |
| 5 | 12 |
| 6 | 10 |
| 7 | 8 |
| 8 | 16 |

The set of locations showing only the out of specification E.coli results is:

Table 14 Multiple choice

| Answer choices | Put X next to your answer |
| --- | --- |
| 1. 1, 4, 5, 6, 8 |  |
| 1. 1, 5, 8 |  |
| 1. 2, 3, 7 |  |
| 1. 3, 4, 6 |  |

1. Xanda wanted to implement sustainable energy work practices in his laboratory. He called a meeting to discuss what practices should be changed. Which of the following is ***NOT*** an example of a sustainable work practice?

Table 15 Multiple choice

| Answer choices | Put X next to your answer |
| --- | --- |
| 1. Shredding waste paper and putting it in a recycling bin |  |
| 1. Switching off computers when not in use |  |
| 1. Running the fume cupboards for an entire shift, rather than as required |  |
| 1. Using test materials within expiry dates |  |

1. Which of the following would **not** be expected to form part of the Quality Control (QC) system in a testing laboratory?

Table 16 Multiple choice

|  |  |
| --- | --- |
| Activity | Tick as appropirate |
| 1. Undertaking replicate analysis |  |
| 1. Using uncalibrated instruments |  |
| 1. Analysing trends in data |  |
| 1. Comparing your test results with other laboratories |  |

## 2: True or false (Questions 16 – 25)

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

Table 17 True or false

| Question | Write *True* or *False* |
| --- | --- |
| 1. Wasted time, effort and materials are all costs to a business |  |
| 1. The purpose of a performance review is to evaluate an employee’s overall work performance against organisational values and standards |  |
| 1. ‘Job ownership’ means taking charge of your work task and completing all associated tasks. An example would be cleaning glassware and returning it to its right place once a test has been completed |  |
| 1. Scheduling of tests and procedures helps to ensure quality results |  |
| 1. Total Quality Management is the philosophy that management have total responsibility for quality |  |
| 1. A pipette is calibrated to deliver 20.00 mL at 20oC. If the pipette is used at 30oC it will have expanded. The amount will be small so there would be no need to run a calibration at 30oC |  |
| 1. Calibrations must be carried out by authorised and/ or properly trained laboratory staff and the results of the calibration recorded |  |
| 1. It is important before reporting results to ask yourself ‘does that result make sense’ |  |
| 1. A ‘right first time’ philosophy, is one way of contributing to sustainable work practices |  |
| 1. Customer service is only an expectation of those in the front office |  |

## 3: Short answer (Questions 26 – 38)

Read the question carefully. Your answer should be a minimum of 10 words but no longer than 150 words unless the question asks for a list or complete a table.

1. ‘Chain of custody’ and ‘traceability of results’ are important in any laboratory quality management system. Explain how each of these terms could provide a mechanism for maintaining good customer relationships, particularly if there has been a problem:
2. What is the process for suggesting improvements in your laboratory?
3. Explain how you, the Laboratory Assistant, could minimise:
4. the amount of electricity consumed
5. the amount of waste water produced
6. the amount of waste chemicals

a.

b.

c.

1. Why is a quality system that is based on ‘getting it right first time’ better than a quality system that is based purely on ‘inspection’ for defects or poor workmanship?
2. For a typical laboratory workplace:
3. describe the products and services provided:
4. generally by the company
5. specifically the laboratory
6. construct a diagram that highlights:
7. the workplace structure, including divisions showing where the laboratory fits
8. the lines of communication

a.

b.

1. A run control diagram is often used to indicate in real time what is occurring in a process.

Explain the meaning of each of these terms and how they are determined for a process:

* 1. centre line
  2. upper control limit
  3. lower control limit
  4. suggest a reason as to why there is a change apparent after time 8:15

a.

b.

c.

d.

1. AllSci tests for % alcohol. The standard operating procedure requires the standard to be tested each morning and after every 10 samples. The standard is expected to be 12.5% ± 1.5 SD. The standard deviation (SD) is 0.3%. Data produced from the standard test over 2 weeks is in the table below.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Test | Date | Std % alcohol | Test | Date | Std % alcohol |
| 1 | 1-May | 12.3 | 13 | 5-May | 12.3 |
| 2 | 1-May | 12.2 | 14 | 5-May | 12.4 |
| 3 | 1-May | 12.2 | 15 | 5-May | 12.4 |
| 4 | 2-May | 12.4 | 16 | 5-May | 12.3 |
| 5 | 2-May | 12.3 | 17 | 8-May | 12.9 |
| 6 | 2-May | 12.5 | 18 | 8-May | 13 |
| 7 | 3-May | 12.4 | 19 | 8-May | 12.9 |
| 8 | 3-May | 12.4 | 20 | 8-May | 12.8 |
| 9 | 3-May | 12.3 | 21 | 9-May | 12.9 |
| 10 | 4-May | 12.3 | 22 | 9-May | 13 |
| 11 | 4-May | 12.3 | 23 | 9-May | 13.1 |
| 12 | 5-May | 12.4 |  |  |  |

1. Plot the control chart using the chart below, indicate on the chart what each of the provided lines represent.
2. What is the standard’s maximum and minimum acceptable value?
3. Provide an interpretation of the chart and the quality of the results that may have been reported over the two week period:
4. A collaborative study provides an indication of how laboratories are performing. AllSci took part in a collective study of the analysis of mercury levels in fish. The results below were the results reported by a number of laboratories. The value reported by AllSci was 0.09 mg/kg. The acceptable range was 0.08-0.10 mg/kg.

|  |  |
| --- | --- |
| **Analysis of mercury in reference samples in different laboratories** | |
| Result (mg/kg) | Number of laboratories |
| 0.05 | 1 |
| 0.06 | 1 |
| 0.07 | 3 |
| 0.08 | 7 |
| 0.09 | 6 |
| 0.10 | 4 |
| 0.11 | 2 |
| 0.12 | 1 |

* 1. How many laboratories were within this range?
  2. How did the AllSci result compare?
  3. Explain why inter-laboratory checks are a useful quality tool.

a.

b.

c.

1. It is important to perform regular audits of a testing laboratory. Explain the difference between an ‘internal’ audit and an ‘external’ audit:
2. Number the order that you would perform the following tasks so that tests and procedures were scheduled to meet customer requirements. Explain your reasons for the choice. Imagine you were the only technician who had to perform all these tasks (number the highest priority as 1):

| Task | Order to be performed (1= first) | Reason for Order |
| --- | --- | --- |
| 1. QC check for alcohol in a reference sample |  |  |
| 1. Microbiolgical testing for confirmation of Salmonella (food poisoning organism) in food sample due to food poisoning and product recall |  |  |
| 1. Fibre testing in cereal sample – has a number of steps and takes all day to complete. The result is due for a nutrition panel of new product due for release next month |  |  |
| 1. Inventory of chemical store |  |  |
| 1. Equipment maintence checks |  |  |
| 1. Place a stationery order |  |  |

1. Considering your experience to date in a laboratory:
2. List the three main work skills you have that you would be able to teach a new worker in the laboratory. Why would these be useful to a new employee? (You should consider all aspects of your work such as maintaining quality, keeping safe, following instructions etc.)
3. List three things you would like to do training on in the next 12 months and explain why.

a.

b.

1. List two common errors that may appear in the recording and reporting of results. Suggest methods of overcoming these:
2. What steps do you take when an unusual result occurs? Outline the reporting procedure:

## Part 4: Assessment Feedback

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

### Assessment outcome

Satisfactory

Unsatisfactory

### Assessor Feedback

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.***