

## CTSI Professional Competency Framework (CPCF) written examination

### Unit 4: Weights and Measures

May 2021

### Guidance for this examination

Please ensure that you indicate, by ticking (✓) the relevant box on the front of your examination booklet, the law viewpoint from which you will be answering: English, Scottish or Welsh.

The examiners may expect candidates to show knowledge of legislation which is in place but not in force (i.e., has been enacted) and regulations which have been made but are not yet in force, if they are directly relevant to the subject-matter of the examination.

### Examination structure

There are two sections to the examination paper:

**Section A** Consists of six questions.  
Candidates should attempt to answer three questions.  
Total allocation of marks is 30 marks.  
Suggested time allocation is 30 minutes.

**Section B** Consists of four questions.  
Candidates should attempt to answer two questions.  
Total allocation of marks is 70 marks.  
Suggested time allocation is 90 minutes.

Total time allowed – two hours (plus ten minutes' reading time).

### Note:

The Weights and Measures paper is a **closed book**; no materials are permitted to be taken into the examination room.

*The examination paper has **three** pages, including this front sheet.*

**Section A**

**Candidates should attempt to answer three questions -  
Total of 30 marks.**

1. Explain the difference between 'Type P' software and 'Type U' software in the context of legal metrology. What type of software identification would you expect to see on a programmable weigh-price labeller?  
(10 marks)

2. What conformity assessment mark, supplementary metrology marks and other inscriptions would you expect to see on a capacity serving measure that had been imported, after 1<sup>st</sup> January 2021, from a manufacturer in Spain, to a bar supplies wholesaler, in your authority? The Spanish manufacturer is approved by a Spanish notified body to module E1 (Quality Assurance of Final Instrument Inspection and Testing) of Directive 2014 /32.

Advise the wholesaler if he can continue to supply these capacity serving measures to his customers in the UK next year. Explain your answer.

(10 marks)

3. What is the general clause on load cells? Explain the criteria that must be met to meet this general clause.  
(10 marks)

4. Outline the circumstances when a GB manufacturer of a material measure of length would apply a UKNI mark.

Would the same requirement apply to a Far Eastern manufacturer of a material measure of length that has been placing these instruments on the EU27 market using a Dutch notified body and wishes to supply them to a wholesaler in Northern Ireland?

What are the responsibilities of the wholesaler?

(10 marks)

5. For the purposes of the GB, what is a Declaration of Conformity and what should it contain? Contrast this with a Certificate of Conformity.  
(10 marks)

6. What is standard temperature compensation? Briefly explain how you would initially conformity assess a liquid fuel measuring instrument that has standard temperature accounting fitted.  
(10 marks)

**Section A total of 30 marks.**

**End of Section A.**

**Section B**  
**Candidates should attempt to answer two questions -**  
**Total of 70 marks.**

7. A local fishing business wishes to pack 1kg e-marked packages of mussels with a garlic sauce and supply them in Great Britain. Explain, to the business, all the weights and measures requirements that would apply to this product.  
(35 marks)
8. You have been asked to initially conformity assess a new weighbridge that has been put into service in your local authority. You are undertaking this process as a module F approved body. In the context of EN 45501, explain in detail the procedures that you would undertake, what marks you would apply and what documents would you leave if the instrument is in compliance?  
(35 marks)
9. A local manufacturer approaches you about a proposed design of an instrument that he would like to place on the market in GB. It is intended to be used in the parcel delivery business, to determine the dimensions and weight of parcels for the purpose of calculating a charge that will be based on both those elements. It is composed of three material measures of length connected at the zero point: one for determination of the height, one for the length and one for the width. They are at 90 degrees to each other at the terminal interval of each measure.
- The three material measures of length are then mounted on a non-automatic weighing instrument, to enable the weight of any parcels to be determined at the same time as the dimensions.
- What advice would you give to the manufacturer about the proposed design and the procedural requirements he should meet if he wishes to place the instrument on the market in the GB. He plans to offer the instrument as having the facility to charge by a combination of weight and dimension, and connect to a cloud server where some of the metrological data would be stored. He would like to achieve this by the end of the year.  
(35 marks)
10. There is a local delicatessen shop which sells olive oil. The olives come from the owner's family farm in Italy and he imports them into the GB, where he crushes them and makes olive oil at his shop and then bottles them into one litre containers. On a visit to the shop, you notice that he fills the bottles by hand from a large 100 litre vat; this is done simply by turning a tap at the base of the vat and filling the bottle by eye.
- What advice would you give him in respect of the filling process?
- You decide to carry out a check on the bottles that he has already packed and are in the shop. Explain how you would do this.  
(35 marks)

**Section B total of 70 marks.**

**END OF EXAMINATION PAPER.**