

CTSI Professional Competency Framework (CPCF) written examination

Unit 4: Weights and Measures

November 2019

Guidance for this examination

Please ensure that you indicate, by writing 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 **seven** pages, including this front sheet.*

Section A

Candidates should attempt to answer three questions.

Each question carries 10 marks.

Total: 30 marks.

1. (a) What is the significance of the Directive 2011/65 on the harmonisation of the laws of Member States in relation to the restriction of the use of certain hazardous substances in electrical and electronic equipment on weighing and measuring equipment, and what documentation should a manufacturer supply with regard to this? (5 marks)
- (b) What actions should a manufacturer of a portable weighing platform take with respect to these requirements when they are repairing the electronic components of a portable weighing platform that was first placed on the market in August 2015? (5 marks)
- (total 10 marks)**
2. Using practical examples and by briefly explaining the content of one specific guidance document, explain the structure and organisation of national, European and international legal metrology harmonisation, and consider how the different bodies interact with each other. (10 marks)
3. (a) Using a practical example of the manufacturer of an automatic weigh price labeller, explain the requirements with which the manufacturer must comply and the procedure that must be followed to become an approved verifier under Section 11A of the Weights and Measures Act 1985. (4 marks)
- (b) Why would a manufacturer that places an automatic weigh price labeller on the market, under the Directive 2014/32, and does not wish to use a module F notified body for this process, need to be an approved verifier? (4 marks)
- (c) Contrast the responsibilities of a manufacturer, installer, repairer and adjuster under these requirements. (2 marks)
- (total 10 marks)**

Section A continues over the page.

4. The Weights and Measures Act 1985 confers a number of duties and powers on local weights and measures authorities, as defined in Section 69. Using practical examples, explain five such duties and five such powers.
(10 marks)
5. What is standard temperature accounting? Explain what guidance is available on this matter. Outline briefly how you would inspect a liquid fuel measuring instrument that utilises standard temperature accounting.
(10 marks)
6. Which WELMEC Guides relate to the control of software in weighing and measuring equipment? Explain the structure of the Guide 7.2, which relates to instruments under the Directive 2014/32, and briefly explain what software identification you would expect to find on an automatic gravimetric filling instrument that is networked to a cloud server where weighing data is stored.
(10 marks)

Section A total of 30 marks.

End of Section A.

Section B

Candidates should attempt to answer two questions.

Each question carries 35 marks.

Total: 70 marks.

7. You are an Inspector of Weights and Measures employed by Blankshire County Council. Joe Blogs Limited is a contract packer in your authority's area. The company packs a range of different foods and non-foodstuffs for discount supermarkets. Crafty Co is a discount supermarket, in your area, that buys its stock from Joe Blogs Limited.

You conduct an inspection in Crafty Co and find the products listed below on sale, all of which have been packed by Joe Blogs Limited. Apply the provisions of Part IV of the Weights and Measures Act 1985, The Weights and Measures (Packaged Goods) Regulations 2006 and The Consumer Protection from Unfair Trading Regulations 2008 to each of the following:

- (a) A range of liquid detergents. These are packed in various nominal quantities between 100 millilitres and 5 litres. Some of these are found to be excessively deficient. Joe Blogs Ltd. alleges that these were detected whilst on their premises and put to one side to be repacked later. Joe Blogs Ltd. further alleges that the driver of Crafty Co's vehicle incorrectly uplifted these packs and delivered them to the supermarket. (7 marks)
- (b) Aluminium kitchen foil. This is packed in 5 metre nominal lengths, with a nominal width of 0.5m. Some of the 5 metre rolls of foil are seriously deficient, whilst others are in excess of the quantity marking. On average, the rolls are 5.01 metres in length. You also determine that the foil is not 0.5m in width, as stated on the pack, but, on average, only 0.475m. (7 marks)
- (c) Boxes of matches. Each box is marked "average contents 500 matches". Each of the boxes of matches contains fewer than 500. Joe Blogs Ltd. state that the quantity marking is treated by the trade as an approximate description and not an accurate quantity statement. (7 marks)
- (d) Bags of flour packed in a nominal quantity of 500g and marked "Quantity may alter after packing due to desiccation". All of these are slightly deficient of the nominal quantity. Joe Blogs Ltd is able to produce records demonstrating that, at the time of packing, the bags of flour would have passed a reference test. (7 marks)
- (e) Joints of beef, vacuum packed on to polystyrene trays with absorbent base pads, packed in various quantities. These are all deficient of their purported weights. Joe Blogs Ltd state that the purported weights are, in fact, gross weights and that there is, therefore, no deficiency in quantity. (7 marks)

(total 35 marks)

Section B continues over the page.

8. A local supermarket has told you that they wish to modernise and refit the forecourt of the petrol station that is on their site. The records of your department show that the petrol station has been there since March 2003 and your authority originally verified the entire site. They are planning to undertake the replacement of the entire site later this year (2019) and subcontract the entire refurbishment to a national fuel dispenser manufacturer, which they want to maintain the site in the future and to not be dependent upon a local Trading Standards Department.

(a) What advice would you give the supermarket so their contract with the fuel dispenser manufacturer will ensure that the dispensers meet all legislative requirements, and that they can continue to be used after any future alteration, adjustment, addition, repair or replacement.

(9 marks)

They are hoping to keep the existing POS system, which was initially verified with the original dispensers in March 2003, as they have been informed that this is technically compatible with the new pumps that they are proposing to use.

(b) What advice would you give to them with regard to this proposal?

(9 marks)

Whilst at the site, you note that the existing pumps have had Outside Payment Terminals (OPTs) added to them since they were initially verified. On closer inspection, all of the inspector's seals still bear the 2003 date on which they were initially verified.

(c) What actions would you take with regard to this, taking into account the relevant guidance and legislative requirements?

(9 marks)

(d) What information would you expect to see on a Declaration of Conformity?

(8 marks)

(total 35 marks)

Section B continues over the page.

9. You are an Inspector of Weights and Measures working for a local weights and measures authority in the north of the United Kingdom. As a result of budget cuts, the authority is not a notified body. The authority is carrying out a project to check for the compliance with Weights and Measures legislation of itinerant buyers and sellers of gold, silver and precious metals. You attend a local village hall to carry out an inspection of one of these traders and discover that he is using a digital non-automatic weighing instrument. You inspect the instrument and note that it is a 3kg instrument with 1g divisions, and that the markings are fully compliant with the markings required by The Non-automatic Weighing Instruments Regulations 2000 (SI 3236) at the time it was placed on the market.

(a) Contrast the markings with those that you would expect to see on an instrument placed on the market in November 2019.

(7 marks)

(b) Detail the metrological tests that you would expect to carry out to confirm that the instrument is in compliance with the essential requirements of the Directive 2014/31. What error would you apply at maximum capacity?

(7 marks)

(c) What are the technical and legal requirements of the test loads that you would use to carry out the inspection? Make reference to the relevant technical standards with regard to these test loads.

(7 marks)

After testing the instrument, you notice that it is outside the maximum permissible error. The trader has a certificate of conformity which shows it was initially verified by a local authority notified body in the south of the United Kingdom.

(d) What actions would you take with regard to these findings?

(7 marks)

(e) Why may the location of use of the instrument have caused this error?

(7 marks)

(total 35 marks)

Section B continues over the page.

10. A local consumer, Mr Wight, visits a local discount store, Discount Den, to buy some washing powder. He buys a one-kilogram box of washing powder to use in his washing machine.

When he gets home, he opens it and notices that the box does not appear to be full. He telephones Discount Den to complain, but the owner, Mr Black, informs him that the manufacturer seals the boxes at the point of production and it is nothing to do with him. Unhappy with Mr Black's response, Mr White decides to complain to you as his local authority Trading Standards Officer and Inspector of Weights and Measures.

Mr White subsequently visits your office with the opened, but unused, box of washing powder. You determine that the gross weight of the box of washing powder is 965 grams, with the net weight of the powder being 955 grams.

You decide to visit Discount Den to make further enquiries. Whilst in the store, you find five identical boxes to Mr White's complaint item on display. You weigh these remaining boxes in the store. Although the gross weight of four of these is over 1,020 grams, one of them weighs 970 grams.

You observe that all of the boxes are red in colour and have a 5mm high orange e-mark on the front. On the rear of the box is a marking stating "1 Kilog" and "Packed by Blissfully Bubbly". An address in your area for Blissfully Bubbly is marked on the box. All of the lettering is in 3mm high black writing.

You subsequently visit Blissfully Bubbly and discover that it is a small-sized producer of household washing powder; it has only recently opened in your area. The owner of Blissfully Bubbly is John Smith.

Mr. Smith informs you that Blissfully Bubbly only packs washing powder in one-kilogram boxes using two separate packing lines. Overall, 200 boxes are produced on average each hour. Mr. Smith further advises that he personally carries out weight checks on his production twice per day, but makes no records. He also confirms that any which are below the nominal quantity are "topped-up to the very top of the box", but they are not always reweighed.

You carry out a reference test and, although the average weight of the sample is 1,001 grams, five of the boxes have a net weight of 965 grams. Blissfully Bubbly uses a 25-kilogram non-automatic weighing instrument to check the boxes. On examination, you cannot find any information relating to an EC type approval certificate or any other required conformity assessment markings. The instrument is, however, accurate.

Apply the provisions of Part IV of the Weights and Measures Act 1985, as amended, and The Weights and Measures (Packaged Goods) Regulations 2006 to the above scenario. In doing so, identify potential offences and defenses.

(35 marks)

Section B total of 70 marks.

End of examination paper.