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**Proposed Metrology Bill**  
**based on**  
**Proposed Drafting Methodology**  
**Consultancy to Draft Revisions to Weights and**  
**Measures Act, GNBS Act and Supporting**  
**Regulations to Facilitate Enforcement of Acts**

*“Private and Confidential”*

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# **METROLOGY ACT**

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**PART I**  
**PRELIMINARY**

- |                |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Title          | 1 | This Bill may be cited as the Metrology Bill and shall come into force on such date as the Minister may, by order appoint.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Interpretation | 2 | <p>In this Act -</p> <p>(a) “adjustment” means a set of operations carried out on a measuring system so that it provides prescribed indications corresponding to given values of a quantity to be measured</p> <p>(b) “calibration” means the operation that, under specified conditions, in a first step, establishes a relation between the quantity values with measurement uncertainties provided by measurement standards and corresponding indications with associated measurement uncertainties and, in a second step, uses this information to establish a relation for obtaining a measurement result from an indication;</p> <p>(c) “Chief Inspector” means chief inspector of Legal Metrology appointed under section 20;</p> <p>(d) “container” means any form of packaging of goods for sale as a single item, whether by way of wholly or partly enclosing the good or attaching the good to, or winding the goods around, some other article, and includes a wrapper of confining band;</p> <p>(e) “Deputy Chief Inspector” means the deputy chief inspector of Legal Metrology appointed under section 20;</p> |

- (f) “Executive Director” means the Executive Director of the Guyana National Bureau of Standards;
- (g) “General Conference of Weights and Measures” means the Conference Generale des Poids et Mesures established under the Convention du Metre and serviced by the International Bureau of Weights and Measures;
- (h) “Guyana National Bureau of Standards” means the Guyana National Bureau of Standards constituted under Guyana National Bureau of Standards Act Cap 90:16;
- (i) “Inspector” means an inspector of metrology appointed under section 20;
- (j) “International Bureau of Weights and Measures” means the Bureau International des Poids et Mesures, established under the Convention du Metre, at Sevres in France;
- (k) “legal metrology” means that part of metrology relating to activities which result from statutory requirements and concern measurement, units of measurement, measuring instruments and methods of measurement and which are performed by competent authority;
- (l) “measuring instrument” means a device, artifact or object for use in the measurement of any physical attribute and includes devices, artifacts or objects for use in the measurement of mass, length, time, electrical current, temperature, amount of substance and luminous intensity and combinations thereof;

- (m) “international system of units” means system of units, based on the International System of Quantities, their names and symbols, including a series of prefixes and their names and symbols, together with rules for their use, adopted by the General Conference on Weights and Measures (CGPM).
- (n) “metrology” means the science of measurement and its application;
- (o) “Minister” means the Minister charged with responsibility for administering this Act;
- (p) “National Measurement Standard” means the standard for use in weight and measure authorised by the Minister under section 4;
- (q) “net contents” means the weight or volume of an article excluding the weight of its container;
- (r) “public measuring instrument” means prescribed instruments by the authority which will be under control to guarantee the accuracy according its use described in specific technical regulation, which is made available for use by the public whether on payment or not;
- (s) “pre-packaged” means a container containing goods together with the container in a case where the goods are placed for sale in the container otherwise than in the presence of a person purchasing the goods;
- (t) “purchaser” includes any person acting on behalf of a purchaser;



- (u) “reference measurement standard” means a measurement standard designated for the calibration of other measurement standards for quantities of a given kind in a given organisation or at a given location;
- (v) “seal” means a mark for use as evidence of the passing, approving and securing of measuring instruments as fit for use for trade, whether applied by impressing, casting, engraving, etching, branding or otherwise, and cognate expressions shall be construed accordingly;
- (w) “sell” includes expose or offer for sale, or export for the purposes of sale, or have in possession for the purpose of sale or export of for any purpose of trade or manufacture;
- (x) “traceability” means the property of a measurement result whereby the result can be related to a reference through a documented unbroken chain of calibrations, each contributing to the measurement uncertainty;
- (y) “trade” means the selling, purchasing, exchanging, leasing, rendering, consigning or providing of any goods, land, facility, service or work on the basis of measurement and includes the collecting of tolls, duties and taxes on the basis of measurement and the business of providing facilities for measuring by means of a prescribed measuring device;
- (z) “verification” in relation to a measurement instrument, means the operations carried out by an inspector having the object of ascertaining and confirming that any device, artifact, object, measuring instrument, measurement system or reference material

entirely satisfies the requirements of the specific technical regulations;

(aa) “weight” means a body of determinate mass for use within a weighing instrument;

(bb) “working standard” means a measurement standard that is used routinely to calibrate or verify measuring instruments or measuring systems.

(cc) “pattern approval” means decision of legal relevance, based on the review of the type evaluation report that the type of a measuring instrument complies with the relevant statutory requirements and results in the issuance of the type approval certificate.

(dd) “initial verification” means verification of a measuring instrument which has not been verified previously.

(ee) “in-service verification” verification of a measuring instrument after a previous verification.

## **PART II**

### **NATIONAL MEASUREMENT UNIT**

Base Units of Measure and International System of Units      3.    (1)    The International System of Units shall be the national system of measurement in Guyana and all units of measurement shall be determined on the basis of the International System of Units.

(2)    The International System of Units shall consist of –

- (a) base units; the physical quantities they represent, their names, symbols and definitions are set out in the First Schedule;
  - (b) derived units; being units derived only from the base unit by the process of multiplication or division or both without the introduction of any coefficients, unity excepted. The physical quantities they represent, the names and symbols of the more commonly used of such units are set out in the Second Schedule.  
  
(c) The units indicated in the Third Schedule may be used with SI units, because of their practical importance, wide usage or use in specialised fields and shall the authorized units of measurement in Guyana.
- (3) Units outside the International System of Units referred to in Fourth Schedule.
  - (4) The International System of Units prefixes for multiples and sub-multiples which may be used with the units of measurement set out in the First, Second, Third and Fourth Schedules and the symbols therefor are as set out and defined in the Fifth Schedule.
  - (5) In addition to the units of measurement otherwise referred to in this section, the customary units of measurement and the symbols therefore set out and defined in the Sixth Schedule shall be deemed for the purposes of this Act to have been determined on the basis of the International System of Units referred to in subsection (1).

- (6) The Seventh Schedule shall have effect for the purpose of specifying the units that shall be used for purposes of trade in Guyana.
- (7) The Eight Schedule shall have effect for the purpose of showing the relationship between the International System of Units and the standard of weight and measure repealed.
- (8) The Minister may, by order, amend any Schedule referred to in this section.
- (9) No act or thing done, or under a law enacted prior to the 1<sup>st</sup> January, 2002 shall be challenged by reason only that the act or thing was done in a unit other than a unit of the International System of Units or other permitted units.

### **PART III**

#### **NATIONAL MEASUREMENT STANDARD**

- |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| National Standard | <ul style="list-style-type: none"> <li>4. (1) The Guyana National Bureau Standard as a National Metrology Institute shall possess, preserve and maintain a collection of national standards that represent the legal units of measurement as well as systems and measuring equipment needed to obtain the corresponding values, the multiples and sub-multiples of these.</li> <li>(2) The Minister shall approval the technical specifications and description of those standards which will be declared National Measurement Standard and authorise the use of such standards of weight and measure as he or she considers necessary.</li> <li>(3) Every standard referred to in subsection (1&amp;2), every reference measurement standard referred to in section 5 or every working</li> </ul> |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

standard referred to in section 6 -

- (a) shall be of a denomination equivalent to;
    - (i) a weight or measure authorised by this Act; or
    - (ii) a multiple, aliquot part or sub-multiple of such weight or measure;
  - (b) shall be calibrated by such competent institution as the Minister directs; and
  - (c) The National Measurement Standards shall be kept at such place and under such conditions as the Minister may direct.
- (3) A standard or capacity measurement may, as the Executive Director considers fit -
- (a) be provided either as a separate standard or by means of divisions marked on a standard of larger measure;
  - (b) be either marked in whole or in part with sub-divisions representing any smaller unit of measurement, or multiples or sub-multiples of such a unit, or have no such marking; and
  - (c) shall be traceable to the International system of Units and such traceability maintained by regular calibrations performed by accredited calibration laboratory or through internationally recognised process of self-declaration.

- (4) Where a standard of weight or measure is about to be brought into use in Guyana, the minister shall declare each of the national standards by notice published in the Gazette, upon recommendation of GNBS. The National Standards must demonstrate traceability to primary standards that reproduce those units as recognized and accepted by the General Conference on Weights and Measures and specify therein the date on which that standard of weight or measure shall become operative, and upon publication of the notice, such standard shall be come a National Measurement Standard and shall, for all purposes, be conclusively deemed to be true and accurate.

Reference  
Measurement  
Standards

5. (1) The Minister shall -
- (a) cause to be prepared such reference measurement standards traceable to the National Measurement Standards;
  - (b) provide for the calibration of any copies so prepared;
  - (c) cause the calibrated copies to be authenticated reference measurement standards in the prescribed manner; and
  - (d) cause such reference measurement standards to be kept at such place and under, such custody as he or she may direct.
- (2) Every reference measurement standard shall, until the contrary is proved, be deemed to be true and accurate.
- (3) Every reference measurement standard shall from time to time be calibrated by the custodian thereof with the corresponding National Measurement Standard, and shall if necessary, be corrected and adjusted.
- (4) The custodian of the National Measurement Standards may at any time cancel any reference measurement standard and direct that it be no longer used.

Working

6. Working standards shall be used for the verification of measuring

Standards

instruments.

- (1) The Bureau shall provide for use by an inspector and cause to maintained such working standards, such testing equipment, and such sealing equipment as the Executive Director may from time to time recommend as being proper and sufficient for the efficient discharge by an inspector of his or her duties under this Act and working standard of mass, length, volume and any such area may –
  - (a) be provided either as a separate standard or by means of divisions marked on a standard of a larger measure; and
  - (b) be either marked in whole or in part with subdivisions representing any multiples or fractions of a unit of measurement specified in Second Schedule, or have no such markings.
- (2) Working standards and testing equipment shall be maintained in such manner as the Minister may prescribe.
- (3) The Minister may, on advice of the Standards Council, by order vary the Eight Schedule by adding to or replacing any of the weights, measures or instruments specified in that Schedule as he or she deems necessary.
- (4) A working standard provided under this section shall, until the contrary is proved, be deemed to be true and accurate.

National  
Metrology

7. (1) The Minister shall upon the advice of the Bureau be responsible for developing a national policy on metrology.

## Policy

- (2) The national metrology policy may be -
  - (a) Introduced in a phased and progressive manner and in separate parts over time; and
  - (b) Reviewed from time to time by the Minister and the Bureau.

## Contents of the National Metrology Policy

8. (1) The national metrology policy may set out strategies, objectives, plans and guidelines and procedures to ensure -
  - (a) That Guyana is provided with a metrology infrastructure that is able to ensure fair trade, foster the economic development and the economic efficiency, the technological and scientific progress of the country, the protection of health and of the environment and the protection of citizens and consumers;
  - (b) education and training on metrology; and
  - (c) traceability of measurement to SI units to users.

## Responsibility for Administration

9. (1) The primary responsibility for the administration of this Act lies with the Guyana National Bureau of Standards as the National Metrology Institute.
- (2) The Bureau shall be responsible for the implementation of this Act.

## Functions of the

10. (1) The principal functions of the Bureau under this Act shall be to



Bureau

- 
- (a) establish and maintain traceability to the International System of Units, depending on the quantity, either by realising the definition of the unit or by keeping and continuously improving the national measurement standards that are traceable to a foreign internationally recognised metrology institute according to Mutual Recognition Agreement- International Conference of Weights and Measurement (MRA-CIPM);
- (b) provide traceability to the national references for calibration laboratories;
- (c) keep and maintain the national measurement standards and providing traceability to the International System of Units;
- (d) carry out research work on the improvement of national references;
- (e) carry out and coordinating research work in metrology;
- (f) provide the necessary advice and support to the government, industry, commerce and the public on metrology issues;
- (g) provide appropriate explanations and information to the public on metrological issues;
- (h) provide a sound metrological basis for the national accreditation scheme;
- (i) study the requirements for new legal metrology

regulations;

- (j) study the calibration and test equipment needed for legal metrology regulations and setting up this equipment;
- (k) carry out type evaluation activities in legal metrology, or supervising bodies designated for this function;
- (l) provide training in legal metrology for other bodies in charge of legal metrology activities;
- (m) protect individuals by establishing and enforcing metrological requirements for measuring instruments used in trade, health, safety, gaming, law enforcement and environmental regulation;
- (n) assure that measuring instruments in trade, health, safety, gaming, law enforcement and environmental regulation are suitable for their intended use, properly installed, and accurate, and are so maintained by their owner or user;
- (o) charge and collect fees for services provided under this Act;
- (p) Conduct surveillance inspection and verification on net content of prepackages goods and measurement instruments ; and
- (q) participate in related international and regional activities.

- (2) The Minister may, upon the recommendation of the Executive Director, designate and delegate other organisations to be responsible bodies in specialised fields of measurement.

## **PART IV**

### **METROLOGICAL CONTROL OF MEASURING INSTRUMENT**

Approval and Verification of Measuring Instruments 11. (1) All measuring instruments for use in trade and for purposes specified in subsection (2) shall be subject to —

- (a) pattern approval as specified in section 28;
- (b) initial verification in accordance with requirements to be prescribed by the Minister in Regulations;
- (c) in-service verification in accordance with the requirements to be prescribed by the Minister in Regulations; and
- (d) verification after repair or modification.

(2) Measuring instruments for use in the following fields -

- (a) specific prescribed measuring instrument for use in the field of health and safety;
- (b) specific prescribed measuring instrument for use in postal services;

- (c) specific prescribed measuring instruments used for sale of electricity and water;
- (d) specific prescribed measuring instrument used for law enforcement activities; and
- (e) specific prescribed measuring instrument used in industry, engineering or any other field;

shall be subject to the provisions of subsection (1).

Periodic  
examination and  
verification of  
weights and  
measuring  
instruments

12. (1) The Executive Director shall fix the times and the places within each area at which an Inspector appointed by the Executive Director shall examine and verify measuring instruments.
- (2) Public notice of the time and place fixed under subsection (1) for the examination and verification of measuring instruments shall be given by the Executive Director as the case may be, in such manner and at such times as he or she considers necessary.
- (3) Every Inspector shall at the time and place fixed under this section for examination by him or her, attend with the working standards provided for his or her use and shall -
- (a) examine in the prescribed manner every measuring instrument which is produced to him or her for the purpose and compare it with a working standard of that weight or measure; and

- (b) examine and test in the prescribed manner every measuring instrument which is produced to him or her for the purpose.
- (4) Nothing in subsection (1) shall be deemed to prevent an Inspector from examining, comparing or testing any measuring instrument which is produced to him or her for examination at any time or place other than a time or place fixed under this section.
- (5) No inspector shall examine any measuring instrument under this section, except upon payment of the prescribed fee for such examination, as outlined in the Tenth Schedule.
- (6) Where a measuring instrument, by reason of it being permanently fixed or of its heavy weight or delicate construction cannot be conveniently moved or where a measuring instrument is situated at a distance exceeding twenty kilometres from the nearest place appointed under subsection (1), it shall be sufficient for the purposes of this section if the person who has the same for use for trade notifies in writing its position to the inspector or some other officer authorised by the inspector to receive the notification at least three days in advance of the date the verification falls due.
- (7) Where a notification has been given under subsection (6) an inspector shall, upon payment of the prescribed fee, attend with the working standards and testing equipment in his or her custody at the place notified and shall test or examine and seal any measuring instrument so notified in the same manner as if

such measuring instrument had been brought or submitted to him or her.

- (8) In case of any measuring instrument which is required by this Act to be verified only after it has been installed at the place where it is to be used for trade if after the same has been so verified and sealed it is dismantled and re-installed, whether in the same place or some other place, it shall not be used for trade after being so re-installed until it has been verified and sealed by an inspector.
- (9) Where any person knowingly uses, or causes or permits any other person to use any measuring instrument in contravention of subsection (8) or knowing that the same is required by virtue of subsection (8) to be so re-verified disposes of it to some other person without informing him or her of that requirement he or she commits an offence.
- (10) An inspector may, subject to the consent of the person submitting the equipment, adjust any measuring instrument which has been found to be inaccurate so as to bring the equipment within the prescribed limits of error.
- (11) Whenever an inspector verifies any measuring instrument and finds it correct, he or she shall issue to the person bringing or submitting the same to him or her a certificate in respect thereof in such form as may be prescribed.

Sealing                      13. (1) An Inspector who, upon examination under sections 11, 12 and

21, finds any measuring instrument to be correct, and otherwise in all respects to comply with this Act and any regulations made under this Act, shall seal such measuring instrument in the prescribed manner with the prescribed mark of verification.

- (2) No Inspector shall seal with a mark of verification any measuring instrument which is not correct or which does not comply with this Act or any regulation which is applicable in the case of such measuring instrument, as the case may be.
- (3) No inspector shall seal any measuring instrument with a mark of verification –
  - (a) unless such weight or measure is of an authorised denomination;
  - (b) unless the requirements of the standards for measuring instrument, as set out in regulations, have been met; and
  - (c) unless he or she has tested it by comparison with a working standard of that weight or measure.
- (4) No person, except an inspector, shall remove any seal from any measuring instrument, or obliterate or deface any such seal or cause any of the foregoing.

Testing of  
Equipment of  
Other Institutions

14. (1) The Executive Director may, on the application of any person, government or institution, accept for testing and calibration so as to determine accuracy or conformity with established national standards or any specifications and for report -

- (a) any article or measuring instrument used or proposed to be used as a standard of a unit of measurement referred to in the Third Schedule of mass, length, area, volume temperature, pressure, electrical and any such area;
- (b) any measuring instrument;
- (c) any other metrological equipment; and
- (d) any article for the use in the manner specified in paragraph (b) or (c), submitted by that person, government or institution for the purpose at such place as the Executive Director may direct.

(2) The Executive Director may charge a prescribed fee in respect of any measuring instrument accepted by him or her under this section, as outlined in the Tenth Schedule.

Legal Status of weights etc sealed 15. Every measuring instrument which has been duly verified by an Inspector under this Act with the prescribed mark of verification shall unless it is found thereafter to be false or incorrect be a legal measuring instrument, as the case may be, in any part of Guyana.

## **PART V**

### **SALE OF PARTICULAR GOODS**

Sale of Goods by weight or measurement. 16. (1) All prepackaged goods shall be sold according to net contents.



- (2) Any person who, in selling or purporting to sell any goods by weight or other measurement or by number, delivers or causes to be delivered to the purchaser a lesser quantity than that purported to be supplied or than corresponds with the price charged commits an offence.

- Pre-packaged goods 17.
- (1) The net contents marked on a container of pre-packaged goods shall be subject to the tests and limits as prescribed.
  - (2) No person shall sell or expose for sale any goods in a container or pre-package by weight or by measure unless such goods comply with the limits specified in the manner prescribed.
  - (3) Subject to such exemptions as may be prescribed by the Minister, no person shall sell any pre-packaged goods by weight or measure unless the net weight or the net measure is marked on the container in the prescribed manner in terms of authorised units of measurement specified in the Third Schedule.
  - (4) Any person who supplies, sells or exposes for sale goods in a container or pre-package which is so made, formed or filled as to be misleading as to the nature, weight or capacity of the contents commits an offence.
  - (5) Any person, who is an importer, or a packer of pre-packaged goods shall ensure that such pre-packaged goods are marked in the prescribed manner with -
    - (a) a statement of the quantity contained in terms of authorised units of measurement specified in the Third Schedule; and

- (b) the name and address of the manufacturer, or the packer or the importer or a mark which enables the manufacturer or the importer or the packer to be readily ascertained.

## **PART VI**

### **WEIGHING AND MEASURING FOR TRADE**

Meaning of Use for Trade

18. (1) For the purpose of this Part, the expression "use for trade" means use in connection with a transaction falling within subsection (2) where -
- (a) the transaction is by reference to quantity or is a transaction for the purposes of which there is made or implied a statement of the quantity of goods to which the transaction relates; and
  - (b) the use is for the purpose of the determination or statement of that quantity.
- (2) A transaction shall be deemed to fall within the meaning of this section if it is a transaction –
- (a) for the transferring or rendering of money or money's worth in consideration of money or money's worth; or
  - (b) for the making of a payment in respect of a toll or duty or other due; or
  - (c) for the assessment of any work done, wages due or services rendered.

- (3) Use for trade does not include use in a case where -
  - (a) the determination or statement is a determination or statement of the quantity of goods required for dispatch to a destination outside Guyana; and
  - (b) no transfer or rendering of money or money's worth is involved other than the passing of the title to the goods and the consideration for them.
- (4) A measuring instrument which is made available in Guyana for use by the public, whether on payment or otherwise, shall be treated for the purposes of this Part as a measuring instrument in use for trade, whether or not it would apart from this subsection be so treated.

Units of Measure for  
lawful use for trade

- 19. (1) A person shall not -
  - (a) use for trade any weight or measure which is not authorised by this Act; or
  - (b) use for trade, or have in his or her possession or control for use for trade any weight or measure of a denomination other than those specified in the Eighth Schedule.
- (2) A person shall not use the karat for trade except for the purposes of transactions in precious stones, pearls, precious metals or articles made precious from such stones, pearls, and precious metals.
- (3) Except as may be prescribed, no capacity measure specified in

the Eighth Schedule shall be used for trade by means of any division or subdivision marked thereon as a capacity measure of any lesser quantity.

- (4) A person who contravenes this section commits an offence and any weight or measure used or in possession of any person for use for trade in contravention of those provisions shall be forfeited.

## **PART VII**

### **ADMINISTRATION**

Appointment of  
Chief Inspector  
and Inspectors

20. (1) There shall be a Chief Inspector of Legal Metrology and such numbers of Deputy Chief Inspectors and Inspectors of Legal Metrology as may be necessary for the purposes of this Act and such Inspectors may be assigned to any areas of Guyana.
- (2) The Minister shall furnish the Chief Inspector, Deputy Chief inspectors and every Inspector with a certificate of his appointment as set forth in the Nineth Schedule.
- (3) The Minister may by order, amend the Nineth Schedule.
- (4) No maker, repairer or adjuster of measuring instruments shall be appointed to an office mentioned in subsection (1).
- (5) The Chief Inspector shall exercise general supervision and control over every Inspector, and every Inspector shall –
- (a) make such returns and furnish such information to the

Chief Inspector as the Chief Inspector shall require; and

(b) give effect to the directions of the Chief Inspector.

(6) The Deputy Chief Inspector has and may exercise all the powers and functions of the Chief Inspector during any absence or inability to act of the Chief Inspector.

(7) The Chief Inspector may exercise any power or perform, any duty conferred or imposed on an Inspector by or under this Act.

Powers of  
Inspectors

21. (1) An inspector may -

(a) at any reasonable time inspect and test all measuring instruments which are used or are in any person's possession, or upon any premises for the purposes of trade;

(b) cause such measuring instruments to be compared with the working standards;

(c) apply such test as may be necessary to determine the accuracy thereof; and

(d) seize and detain such of the measuring instruments as are liable to forfeiture under this Act.

(2) For the purposes of subsection (1), an inspector may -

(a) enter any shop, factory, store or warehouse, stall, yard or other premises wherein he or she has reasonable cause to believe that there are any measuring instruments which he

or she is authorized under this Act to inspect or where any goods are bought, sold, exposed, pre-packed or kept for sale, or weighed or measured for sale or for conveyance or carriage or for any other trade purpose;

- (b) inspect and weigh or otherwise measure or count any goods on any premises or at any place where goods are bought, sold or exposed for sale, and may stop any vehicle or person carrying goods for sale or delivery to a purchaser;
- (c) may enter any premises where goods have been delivered to a purchaser in order to ascertain that the provisions of this Act have been complied with, and for any such purpose may use any measuring instrument which complies with the provisions of this Act and which may be upon such premises; and
- (d) may require the production of any documents or records appertaining to the quantity or gauge of such goods and such reasonable assistance from any person present and having an interest in those goods as may be necessary.

Power to make  
test purchases

- 22. (1) An inspector may make such test purchases of goods as may appear expedient for the purposes of determining whether or not the provisions of this Act are being complied with; and the expenses incurred in making any such purchase shall be met from public funds.
- (2) An inspector may, in connection with the investigation of any alleged offence arising out of a test purchase involving payment with money, search any person for the money, or enter and

search premises, or search any box or receptacle and the contents thereof at the place at which such test purchase has been made, and may seize the money so found and retain any change received for the purchase as evidence of the transaction.

- (3) Any goods purchased under subsection (1) in respect of which no court proceedings are instituted shall be disposed of in such a manner as the Minister may, on advice of the Standards Council, prescribe.

Powers of Arrest,  
Search and  
Seizure

23. (1) In addition to any other powers conferred by this Act, an inspector shall have the following powers –

- (a) stop and detain, or may arrest without warrant, any person reasonably suspected of having committed an offence under this Act or being in possession of any measuring instrument in respect of which he or she has reason to believe that such an offence has been committed and may search any person so stopped and detained or arrested;
- (b) seize and detain any goods or thing, or any measuring instrument in respect of which he or she has reason to suspect that an offence under this Act has been committed or which he or she has reason to suspect to be evidence of such an offence.

- (2) A person shall not be arrested under this section unless the person –

- (a) obstructs or hinders the inspector;

- (b) it appears to the inspector, is likely to fail to answer to a summons;
- (c) refuses to give his name and address to the inspector and to produce to him or her satisfactory evidence of his or her identity; or
- (d) gives a name and address which the inspector has reason to believe to be false.

Registers to be kept by Inspectors 24. Every Inspector shall keep a register in the prescribed form in which he or she shall enter such particulars as may be prescribed relating to the performance of his or her duties under this Act and shall at such times as may be prescribed transmit the register to the Executive Director for examination.

Public Registers 25. (1) The Bureau shall maintain and publish annually a register of public measuring devices in Guyana.

(2) The Minister may cause to be provided and maintained at public expense such public measuring devices as appear to him to be necessary for the purposes of this Act;

(3) The Minister may by Regulation prescribe the fees, if any, to be paid for the use of public measuring devices provided under this section and the circumstances under which such fees shall be paid.

(4) No person shall operate a public measuring instrument unless he or she holds a licence from the Bureau.



(5) A person who contravenes or who causes or permits another to contravene subsection (4) is guilty of an offence.

(6) A person is guilty of an offence who, not being the holder of a licence from the Bureau, knowingly manufactures, assembles, repairs, imports or knowingly causes to be manufactured, assembled, repaired or imported a public measuring instrument.

Registers 26. The Bureau shall maintain and publish annually a register of the names of persons carrying on the business in Guyana of selling, manufacturing, assembling, importing, exporting, repairing or adjusting prescribed measuring instruments for use in trade.

Prohibition of sale etc. of weights and measuring instruments 27. (1) No person shall sell, manufacture, assemble or repair any measuring instrument except under the authority of a licence issued by the Executive Director under this section.

(2) Every person who wishes to obtain a licence under subsection (1) -

(a) to repair any measuring instrument shall -

(i) demonstrate to the satisfaction of the Executive Director his or her ability or the ability of the persons employed by him or her, to repair the type of measuring instrument which he or she seeks to repair; and

(ii) be in possession of, or have access to such

equipment, tools and other facilities as may be required for the proper execution of such repair;

- (b) to manufacture any measuring instrument shall -
    - (i) demonstrate to the satisfaction of the Executive Director, his or her ability or the ability of persons employed by him or her to manufacture the type of measuring instrument which he or she seeks to manufacture;
    - (ii) be in possession of such equipment, tools and other facilities as may be required for the manufacture or assembly of such measuring instrument; and
    - (iii) submit to the Executive Director the drawings and samples as may be required of the measuring instrument which he or she intends to manufacture, for pattern approval.
  - (c) to sell any measuring instrument shall -
    - (i) submit to the Executive Director samples of the measuring instrument which he or she intends to sell for pattern approval; and
    - (ii) on approval being granted, but prior to sale, have such devices verified by the Bureau.
- (3) No licence to sell, manufacture or repair measuring instruments shall be issued to any person except upon payment of the prescribed fee.

- (4) Every licence issued by the Executive Director under this section shall be in the prescribed form, subject to such conditions as may be prescribed and shall be in force until such date as may be specified in the licence.
- (5) The Executive Director may revoke any licence issued under this section if the holder of the licence is convicted of an offence under this Act.
- (6) A person referred to in subsections (1) and (2) who engages in business without having the licence from the Bureau is guilty of an offence.
- (7) A person is guilty of an offence who knowingly manufactures, assembles, sells, imports or knowingly causes to be manufactured, assembled, sold or imported a measuring instrument for use in connection with trade other than a prescribed measuring instrument.
- (8) A person who, being a person carrying on the business of repairing or adjusting prescribed measuring instruments, employs any other person to be directly responsible for such repair or adjustment is guilty of an offence unless that other person so employed holds a licence referred to in subsection (3).

Prohibition on importation      28. (1) No Person shall import into Guyana any measuring instrument for use in trade unless it has been demonstrated to the satisfaction of the Executive Director that the measuring instrument to be imported is of the appropriate denomination and approved by the relevant authority recognised by the Bureau.

- (2) A person who knowingly or knowingly causes a contravention of section 28(1) is guilty of an offence.

## **PART VIII**

### **OFFENCES AND PENALTIES**

- Failure to weigh or measure when selling goods if so required 29. (1) A person who sells by weight or measure goods other than pre-packaged good, whether on his own behalf or on behalf of another person, shall, upon being required by the person to whom the goods are to be delivered and in the presence of that person, weigh and measure such goods, as the case may be.
- (2) A person who is required under this section to weigh or measure any goods, other than pre-packaged goods, and fails to do so is guilty of an offence.
- Sale by authorised denominations 30. (1) Every contract, bargain, sale or dealing made or had in Guyana whereby any work, goods, wares, merchandise or other thing is or are to be done, sold, hired, delivered, carried, measured, computed, paid for, or agreed to by a unit of measurement, shall be made and had according to any one of the authorised units of measurement specified in the Third Schedule.
- (2) All fees and duties whatsoever charged or collected in Guyana shall be based on the authorised units of measurement specified in the Third Schedule.
- (3) The packing in Guyana of any article or container for the purposes of sale shall be done according to any one of the

authorised units of measurement specified in the Third Schedule.

- (4) A person who knowingly contravenes or knowingly causes a contravention of subsections (1), (2) and (3) shall be guilty of an offence.

Uncertified weighing or measuring instrument

31. A person who uses for the purposes of trade or has in his possession for use for the purposes of trade any measuring instrument, in respect of which -

- (a) certificate has not been issued in pursuance of section 11; or  
(b) such certificate has been issued but has expired,

is guilty of an offence.

Use of false or unjust weights etc.

32. Whoever uses any false weight or false measure of capacity, or uses any weight or any measure of length or capacity representing it to be a different weight or measure from what it is, commits an offence and is liable on summary conviction to a fine not exceeding five hundred thousand dollars or imprisonment for a term of six months or to both such fine and imprisonment.

Fraud in use of weight etc.

33. Where a fraud is knowingly committed in the use of a measuring instrument, the person committing the fraud and every person who is a party to the fraud is guilty of an offence and in addition to any penalty the court imposes the measuring instrument may be forfeited.

Forgery, etc.

- 34 A person who -

- (a) forges or counterfeits any seal or mark provided under this Act for the use of Inspectors in stamping measuring instruments; or
- (b) makes, uses, sells, exposes for sale, utters or otherwise disposes of any measuring instrument bearing any stamp or mark which he or she knows to be false, forged or counterfeited; or
- (c) removes any mark which has been stamped by an Inspector on any measuring instrument and inserts such mark on any other measuring instrument; or
- (d) increases or diminishes a measuring instrument which has been stamped or certified by an Inspector under this Act, or tampers with a measuring instrument which has been so stamped, or uses, sells, exposes for sale, utters for sale, keeps in his or her possession for use in a trade or otherwise disposes of any measuring instrument which he or she knows to be so increased, diminished or false or any measuring instrument which he or she knows to be tampered with,

commits an offence and is liable on summary conviction to a fine not exceeding five hundred thousand dollars or to imprisonment for a term of six months or to both such fine and imprisonment.

Selling ,etc            35. A person who knowingly sells, utters, disposes of, or exposes for sale any measuring instrument with any forged or counterfeited seal or certificates resembling or purporting to resemble any seal or certificate used for the purposes of this Act is guilty of an offence, and in

addition to any punishment the court imposes, the measuring instrument shall be forfeited.

Making or  
selling unjust  
weight

36. A persons who -

- (a) sells or exposes for sale any measuring instrument which has not been verified and sealed by an Inspector with the prescribed mark of verification; or
- (b) uses a measuring instrument which has not been verified and sealed by an Inspector with the prescribed mark of verification, for purposes of trade,

commits an offence and is liable on summary conviction to a fine not exceeded one million dollars or to imprisonment for a term of six months or to both such fine and imprisonment.

Obstructing  
inspectors, etc in  
the performance  
of their duties

37. A person who –

- (a) assaults, resists, hinders or obstructs an Inspector entering any place or premises mentioned in section 21 and section 23.
- (b) hinders or obstructs an Inspector in the performance of his duties under this Act;
- (c) fails to comply with any request made by an Inspector in performance of his duties under this Act;
- (d) bribes or attempts to bribe an Inspector, in connection with

any matter arising in the exercise or performance of his duties under this Act;

(e) being an inspector, accepts or attempts to solicit any bribe in connection with any matter arising in the performance of his duties under this Act;

(f) uses indecent, abusive or insulting language to an Inspector in the exercise of his duties under this Act; or

(g) contravenes or fails to comply with any provision of this Act or regulations,

commits an offence and is liable on summary conviction to a fine not exceeding one million dollars or to imprisonment for a term of six months or to both such fine and imprisonment.

Costs 38. Costs shall not be imposed on any person prosecuting a complaint under this Act, unless, the complaint is dismissed and deemed by the court to be frivolous or vexatious.

Deceptive packaging 39. Any person who supplies, sells or exposes for sale any goods in a container or pre-package which is so made, formed or filled as to be misleading as to the nature, weight or capacity of the contents, commits an offence and is liable on summary conviction to a fine not exceeding seven hundred and fifty thousand dollars or to imprisonment for a term of six months or to both such fine and imprisonment.



- Importing or packing of pre-packaged goods
40. Any person who is an importer or a packer of pre-packaged goods -
- (a) who imports or packs pre-packaged goods in contravention of the requirements of section 17; or
  - (b) fails to mark in authorised units on any pre-package the number, net weight or measure it contains; or
  - (c) fails to indicate the name and address of the manufacturer, or the importer or a mark enabling identification of such name and address;
- commits an offence and is liable on summary conviction to a fine not exceeded one million dollars or to imprisonment for a term of six months or to both such fine and imprisonment.
- Selling of unmarked pre-packaged goods
41. Any person who sells or exposes for sale a pre-package or container of pre-packaged goods of which the number, the goods net weight or measure is not marked on the pre-package or the container in terms of units specified in the Third Schedule commits an offence and is liable on summary conviction to a fine not exceeding five hundred thousand dollars or to imprisonment for a term of six months or to both such fine and imprisonment.
- Repair or manufacture of weights and measures without certificate/licence.
42. Any person who -
- (a) except under the authority of a certificate or licence issued in that behalf under this Act, manufactures, imports or repairs any measuring instrument; or

(b) being the holder of such certificate or licence, commits a breach of any condition lawfully inserted in the licence;

commits an offence and is liable on summary conviction to a fine not exceeding three hundred thousand dollars or to imprisonment for a term of three months or to both such fine and imprisonment.

- |                                                        |                                                                                                                                                                                                                                                                       |
|--------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Forfeiture                                             | 43. All measuring instruments forfeited under this Act shall be destroyed and the materials thereof may be sold or otherwise disposed of as the Minister may direct and the proceeds of any sale shall be paid in to the Consolidated Fund.                           |
| Evidence as to possession                              | 44. For the purposes of this Act any measuring instrument which is found in the possession of any person who carries on any trade, shall be deemed, until the contrary is proved, to be in the possession of that person for use in trade.                            |
| Inspector sealing without verification                 | 45. An inspector who seals any measuring instrument without duly verifying it by comparison with the proper working standard in his possession or seals any measuring instrument without having determined its suitability for use in trade, is guilty of an offence. |
| Prohibiting of giving short weight, measure or number. | 46. A person who, in selling any article by weight, measure or number, delivers or causes to be delivered to the purchaser a less weight, measure or number, as the case may be, is guilty of an offence.                                                             |
| Offences by corporations.                              | 47. Where any offence under this Act is committed by a body corporate then, as well as the body corporate, any person who, at the time of the commission of the offence, was holding the office of a Director, Chief                                                  |

Executive Officer, or an officer, with the management of the affairs of such body corporate commits an offence and shall be liable to be proceeded against and punished accordingly, unless he proves to the satisfaction of the court that he had no knowledge and could not, by the exercise of reasonable diligence, have had knowledge of the commission of the offence.

Principal, liable for offences of servants and agents      48.      Where an offence under this Act is committed by an agent or servant of a manufacturer or trader, such offence shall be deemed to have been committed by that manufacturer or trader unless he or she proves that the offence was committed without his or her knowledge.

Defences      49.      (1)      In any proceedings for an offence under this Act or the regulations, it is a defence, for the person charged to prove -

(a)      that the commission of the offence was due to a mistake or to reliance on information supplied by another person whom he reasonably believed to have had knowledge of or experience in the particular subject or to reliance on the act or default of another person, or to an accident or some other cause beyond his control; and

(b)      that he took all reasonable precautions and exercised all due diligence to avoid the commission of the offence by himself or any person under his control.

(2)      If in any case the defence provided by subsection (1) involves an allegation that the commission of the offence in question was due to an act or default of another person (not being a person under the control of the person charged) or due to reliance on information supplied by another person not being a person under

his control, the person charged shall not, without the leave of the court, be entitled to rely on the defence unless, before the beginning of the period of fourteen days ending with the date when the hearing of the charge began, he or she served on the prosecutor a notice giving such information identifying or assisting in the identification of the other person as was then in his or her possession.

## **PART IX**

### **MISCELLANEOUS**

- Police Assistance 50. (1) The Executive Director, Deputy Director, an Inspector or other person authorised by the Executive Director may request the assistance of a police officer in uniform in the enforcement of the provisions of this Act.
- (2) A police officer who is requested to give assistance under subsection (1) shall give such assistance.
- Limitations 51. (1) Nothing in this Act shall operate to create an offence -
- (a) in respect of, or in connection with goods (other than a measuring device) where it is shown that they are intended exclusively and specifically for export to a destination in a country outside Guyana; and that they comply with the relevant legal requirements in force in that country; and
- (b) in respect of the importation or exportation of a measuring device by a person for his own use and not for sale or use in connection with trade.

- (2) Where goods intended specifically and exclusively for export to a destination outside Guyana subsequently are found not to have been exported, this Act and the Regulations shall apply to such goods.

General Penalty    52.    (1)    A person found guilty of a contravention of any provision of this Act for which no penalty is expressly provided shall be liable on conviction to a fine not exceeding five hundred thousand dollars or to imprisonment for a term not exceeding 12 months or to both and where the offence is a continuing offence a fine not exceeding the sum of one hundred thousand dollars for every day during which the offence continues.

- (2) Where any person has been convicted of an offence under this Act, the court may, in addition to any other penalty to which the convicted person may be liable, make such order as the court considers reasonable to prevent the person from continuing to deal with or in the same goods or articles in respect of which the offence was committed.

Compounding        53.    (1)    The Bureau may, where it is satisfied that a person has committed an offence under this Act, compound the offence by accepting from such person a sum of money not exceeding seven hundred and fifty thousand dollars.

Offence

- (2) The powers conferred under this section shall be exercised when a person admits that he has committed the offence under this Act.

- (3) Subject to the provisions of sub-section (5), where proceedings

are brought against a person for an offence under this Act, it shall be a good defence if that person proves that the offence with which he is charged has been earlier compounded.

- (4) Any sum of money received under this section shall be dealt with as if the sum of money were a fine imposed by the court of law for the offence.

Prosecution 54. Save as otherwise provided in this Act, proceedings for an offence under this Act shall not be commenced except by the Chief Inspector or any person authorised in writing by the Chief Inspector.

Regulations 55. The Minister may make regulations respecting –

- (1) (a) the exemption in whole or in part from the provisions of this act any area, undertaking or class of undertaking specified in the regulations;
- (b) the verification and sealing of weights, measures, weighing instruments or measuring instruments, including the prohibition of sealing in cases where the nature, denomination, material or principle of construction of the weight, measure, weighing instrument or measuring instrument appears likely to facilitate the perpetration of fraud;
- (c) the tests to be applied for the purpose of ascertaining the accuracy and efficiency of measuring instruments;
- (d) the limits of error to be avowed on verification and tolerated either generally or with respect to any trade;

- (e) the custody of the set of standards of weight and measure that are to be maintained by government and the periodical verification and adjustment thereof;
- (f) the manner in which the value expressed in terms of weight or measure other than in terms of standard weight and measure may be converted;
- (g) the enabling of inspectors to carry out their duties under this act;
- (h) the enforcement of the requirements that relate to measuring instruments;
- (i) the materials and principles of construction of measuring instruments for use of purposes of trade;
- (j) the purpose for which particular types of measuring instruments may be used for purposes of trade;
- (k) the manner of erecting, locating or using measuring instruments used for the purposes of trade;
- (l) the circumstances in which, conditions under which, and manner in which seals or marks placed on measuring instruments may be obliterated or defaced;
- (m) the abbreviations of or symbols for units of measurement which may be used for trade;

- (n) the system of licensing for the control of importation, repairing, adjusting and recalibrating of measuring instruments;
  - (o) quantities in which prescribed prepackaged goods may be sold;
  - (p) the prescribing of anything that is by this Act authorised or required to be prescribed;
  - (q) prohibiting persons licensed under this Act from demanding or accepting, in respect of the repair or adjustment of measuring instruments, fees in excess of such maximum fees as may be prescribed by such regulations; and
  - (r) generally, the carrying out of the provisions of this Act.
- (2) The Minister may also make Regulations in respect of certain classes of transactions and in particular may by such Regulations provide that -
- (a) certain classes of goods shall be sold, agreed to be sold or offered for sale or exposed or advertised in such a manner as to constitute an invitation to treat only by quantity, expressed in a manner prescribed;
  - (b) certain classes of goods when pre-packed shall be marked with a statement of quantity expressed in a manner prescribed;



- (c) certain classes of goods shall be pre-packed only in quantities prescribed;
- (d) certain classes of goods made up in or on a container for sale or delivery after sale shall be marked with such information as to quantity as may be prescribed;
- (e) certain classes of goods shall be made up in or on a container for sale or delivery after sale, only in quantities prescribed;
- (f) certain classes of goods shall be made for sale only in quantities prescribed;
- (g) certain classes of goods shall not be sold, agreed to be sold or offered for sale or exposed or advertised in such a manner as to constitute an invitation to treat, unless the quantity of the goods, expressed in a manner prescribed, is made known to the purchaser or prospective purchaser at or before such time as may be prescribed;
- (h) when a vending machine is used in connection with the sale of certain classes of goods the following information shall be prominently displayed on that machine -
  - (i) the name and address of the seller of the goods;  
and
  - (ii) a statement as to the net quantity comprised in each item of the goods;

(i) when a coin-operated or gaming machine is used in connection with the provision of a service or facility on the basis of measurement, the following information shall be prominently displayed on that machine -

(i) the name and address of the person providing the service or facility; and

(ii) a statement as to the measurement on the basis of which the service or facility is offered.

(3) Regulations made under this section shall be subject to negative resolution of Parliament.

(4) A person who contravenes this Act or Regulations made under this section is guilty of an offence.

Transitional Provisions      56. The Provision of the Weights and Measures Act No. 15 of 1981 shall remain [**applicable for a period of .....**]

Repeal                      57. The Weights and Measures Act No. 15 of 1981 is hereby repealed.

Schedules                      (If unedited to be inserted with the final version of the Act)

## FIRST SCHEDULE

### BASE UNITS

Physical Quantity	Name of Unit	Unit Symbol	Definitions
Length	Metre	m	The distance travelled by light in a vacuum during $1/299\,792\,458$ of a second.
Mass	kilogram	kg	The unit for the measurement of mass, being a mass of the international prototype of the kilogram established in the year 1889 by the First General Conference of Weights and Measures deposited as the International Bureau of Weights and Measures.
Time	second	s	The unit for the measurement of time, being the duration of $9\,192\,631\,770$ periods of the radiation corresponding to the transition between the two hyperfine levels of the ground state of the caesium-133 atom.
Electric Current	ampere	A	The unit for the measurement of electric current, being that constant current, which, if maintained in two straight parallel conductors of infinite length, of negligible circular cross-section and placed one metre apart in vacuum, would produce between these conductors a force equal to $2 \times 10^{-7}$ newtons per metre of length.
Thermodynamic temperature	kelvin	K	The unit for the measurement of thermodynamic temperature, being the fraction $1/273.16$ of the thermodynamic temperature of the triple point of water.
Luminous intensity	candela	cd	The unit for the measurement of luminous intensity, in a given direction of a source which emits monochromatic radiation of frequency $540 \times 10^{12}$ hertz having a power flux in that direction of $1/683$ watt per steradian.

## FIRST SCHEDULE

### BASE UNITS

Physical Quantity	Name of Unit	Unit Symbol	Definitions
Amount of Substance	mole	mol	The unit for the measurement of the amount of substance of a system which contains as many elementary entities as there are atoms in 0.012 kilograms of carbon 12. When the mole is used, the elementary entities must be specified and may be atoms, molecules, ions, electrons, other particles or specified groups of such particles.

## SECOND SCHEDULE

### PART I

#### *SI DERIVED UNITS EXPRESSED IN TERMS OF BASE UNITS*

Quantity	SI Unit Name	Symbol
area	square metre	m <sup>2</sup>
volume	cubic metre	m <sup>3</sup>
speed, velocity	metre per second	m/s, ms <sup>-1</sup>
acceleration	metre per second squared	m/s <sup>2</sup> , ms <sup>-2</sup>
wave number	1 per metre	m <sup>-1</sup>
density, mass density	kilogram per cubic metre	kg/m <sup>3</sup> , kgm <sup>-3</sup>
current density	ampere per square metre	A/m <sup>2</sup> , A/m <sup>-2</sup>
magnetic field strength	ampere per metre	A/m, A/m <sup>-1</sup>
concentration (of amount of substance)	mole per cubic metre	mol/m <sup>3</sup> , mol m <sup>-3</sup>
specific volume	cubic metre per kilogram	m <sup>3</sup> /kg, m <sup>3</sup> kg <sup>-1</sup>
luminance	candela per square metre	cd/m <sup>2</sup> , cd m <sup>-2</sup>

**SECOND SCHEDULE –**

**PART II -  
SI DERIVED UNITS WITH SPECIAL NAMES**

Quantity	SI Unit Name	Symbol	Expression in terms of other units	Expression in terms of SI base units
frequency	Hertz	Hz	—	$s^{-1}$
force	Newton	N	—	$m\ kg\ s^{-2}$
pressure, stress	Pascal	Pa	$N/m^2$	$m^{-1}kg\ s^{-2}$
energy, work quantity of heat	Joule	J	Nm	$m^2kg\ s^{-2}$
power	Watt	W	J/s	$m^2kg\ s^{-3}$
quantity of electricity charge	Coulomb	C	—	s A
electric potential, volt, potential difference, electromotive force	Volt	V	W/A	$m^2kg\ s^{-3}\ A^{-1}$
capacitance	Farad	F	C/V	$m^2kg^{-1}s^4\ A^2$
electric resistance	Ohm	$\Omega$	V/A	$m^2kg\ s^{-3}\ A^{-2}$
conductance	siemens	S	A/V	$m^{-2}kg^{-1}s^3\ A^2$
magnetic flux	Weber	Wb	Vs	$m^2kg\ s^{-2}\ A^{-1}$
angle, plane	Radian	rad	—	m/m=1
angle, solid	Steradian	sr	—	$m^2/m^2=1$
magnetic flux density	Tesla	T	Wb/m <sup>2</sup>	$kg\ s^{-2}\ A^{-1}$
inductance	henry	H	Wb/A	$m^2kg\ s^{-2}\ A^{-2}$
luminous flux	lumen	lm	—	cd
illuminance	lux	lx	lm/m <sup>2</sup>	$m^{-2}cd$
absorbed dose, specific energy imparted, kerma absorbed dose index	Gray	Gy	J/kg	$m^2s^{-2}$
celsius temperature	Degree Celsius	°C	—	K

**SECOND SCHEDULE –**

**PART III –**

***EXAMPLES OF SI DERIVED UNITS EXPRESSED BY MEANS OF SPECIAL NAMES AND BASE UNITS***

Quantity	SI Unit Name	Symbol	Expression in terms of SI base units
dynamic viscosity	pascal second	Pa s	$\text{m}^{-1}\text{kg s}^{-1}$
moment of force	metre newton	Nm	$\text{m}^2 \text{kg s}^{-2}$
surface tension	newton per metre	N/m	$\text{kg s}^{-2}$
power density, heat flux density, irradiance	watt per square metre	W/m <sup>2</sup>	$\text{kg s}^{-3}$
heat capacity, entropy	joule per kelvin	J/K	$\text{m}^2\text{kg s}^{-2}\text{K}^{-1}$
specific heat capacity specific entropy	joule per kilogram kelvin	J/(kg.K)	$\text{m}^2\text{s}^{-2}\text{K}^{-1}$
specific energy	joule per kilogram	J/kg	$\text{m}^2 \text{s}^{-2}$
thermal conductivity	watt per metre kelvin	W/(mK)	$\text{m kg s}^{-3}\text{K}$
energy density	joule per cubic metre	J/m <sup>3</sup>	$\text{m}^{-1}\text{kg s}^{-2}$
electric field strength	volt per metre	V/m	$\text{m kg s}^{-3}\text{A}^{-1}$
electric charge density	coulomb per cubic metre	C/m <sup>3</sup>	$\text{m}^{-3} \text{s A}$
electric flux density	coulomb per square metre	C/m <sup>2</sup>	$\text{m}^{-2} \text{s A}$
permittivity	farad per metre	F/m	$\text{m}^{-3}\text{kg}^{-1}\text{s}^4\text{A}^2$
permeability	henry per metre	H/m	$\text{m kg s}^{-2}\text{A}^{-2}$
molar energy	joule per mole	J/mol	$\text{m}^2\text{kg s}^{-2}\text{mol}^{-1}$
molar entropy, molar heat capacity	joule per mole kelvin	J/(mol.K)	$\text{m}^2\text{kg s}^{-2}\text{K}^{-1}\text{mol}^{-1}$
exposure (X and Y rays)	coulomb per kilogram	C/kg	$\text{kg}^{-1} \text{s A}$
absorbed dose rate	gray per second	Gy/s	$\text{m}^2 \text{s}^{-2}$

## **THIRD SCHEDULE**

### **Authorised Units for use in trade The International System of Units and other Units**

#### **1.1 Measurement of length**

##### **1.1.1 SI units**

kilometre (km) = 1000 metres

metre (m) = as defined First Schedule

centimetre (cm) =  $10^{-2}$  metre

millimetre (mm) =  $10^{-3}$  metre

micrometre ( $\mu\text{m}$ ) =  $10^{-6}$  metres

##### **1.1.2 Other units**

nautical mile = 1852 metres

#### **1.2 Measurement of Area**

##### **1.2.1 SI units**

square metre ( $\text{m}^2$ ) = as defined in Second Schedule.

square kilometre ( $(\text{km})^2$ ) = 1 000 000 square metres

square millimetre ( $(\text{mm})^2$ ) = 1/1 000 000 th of square metre

### **1.2.2 Other units**

Hectare (ha) = 10 000 square metres

are (a) = 100 square metres

square centimetre ( $\text{cm}^2$ ) = 1/10000 th of a square metre

## **1.3 Measurement of Plane and Solid angle**

### **1.3.1 Plane angle**

radian (rad) = as defined in Second Schedule.

degree (E) =  $\pi$  /180 radians

minute ( N) =  $\pi$ /10800 radians

second ( O) =  $\pi$ /648 000 radians

### **1.3.2 Solid angle**

steradian (sr) = as defined in the Second Schedule.

## **1.4 Measurement of Speed**

### **1.4.1 SI units**

metre per second (m/s) = as defined in the Second Schedule.

### **1.4.2 Other units**

kilometre per hour = 10/36 metres per second

knot = 1.852 kilometres per hour



## **1.5 Measurement of Volume or Capacity**

### **1.5.1 SI units**

Cubic metre = as defined in the Second Schedule.

### **1.5.2 Other units**

Hectolitre (hl) = 100 litres

litre (l or L) = 1/1000th of a cubic metre = 1 cubic decimetre

Cubic centimetre ((cm)<sup>3</sup>) = 1/100 000th of a cubic metre

decilitre (dl) = 1/10th of a litre

Centilitre (cl) = 1/100th of a litre

millilitre (ml) = 1/1000th of a litre

## **1.6 Measurement of Mass**

### **1.6.1 SI units**

kilogram (kg) = as defined in the First Schedule.

gram (g) = 1/1000 th of kilogram

milligram (mg) = 1/1000 000th of a kilogram

microgram (:g) = 1/1 000 000 000th of a kilogram

### **1.6.2 Other units**

tonne (t) = 1000 kilogram

metric carat = 200 milligrams

## **1.7 Measurement of Density (mass density)**

### **1.7.1 SI units**

kilogram per cubic metre = as defined in the Second Schedule.

### **1.7.2 Other units**

tonne per cubic metre = 1000 kilograms per cubic metre

## **1.8 Measurement of Force**

### **1.8.1 SI units**

meganewton (MN) = 1 000 000 newtons

kilonewton (kN) = 1 000 newtons

newton (N) = as defined in the Second Schedule.

millinewton (mN) = 1/1 000 of a newton

## **1.9 Measurement of pressure and stress**

### **1.9.1 SI units**

megapascal (MPa) = 1 000 000 pascals

kilopascal (kPa) = 1 000 pascals

pascal (Pa) = as defined in the Second Schedule.

## **1.10 Measurement of linear density of Textiles**

### **1.10.1 Other units**

tex (tex) = The mass in grams of one kilometre of yarn.

= 1 g/1 km =  $10^{-6}$  kg/m

millitex (mtex) = 1/1000 th of a tex

decitex (dtex) = 1/10 th of a tex

kilotex (ktex) = 1000 tex.

## **1.11 Measurement of Time and Frequency**

### **1.11.1 Time**

minute (min) = 60 seconds

hour (h) = 3600 seconds

day (d) = 86400 seconds

week = 7 days

month and year of the Gregorian calendar

### **1.11.2 Frequency**

gigahertz (GHz) = 1 000 000 000 hertz

megahertz (MHz) = 1 000 000 hertz

kilohertz (kHz) = 1 000 hertz

hertz (Hz) = as defined in the Second Schedule.

## **1.12 Measurement of Temperature**

### **1.12.1 SI units**

kelvin (K) = as defined in the First Schedule.

### **1.12.2 Other units**

degree Celsius ( $^{\circ}\text{C}$ ) = one kelvin (K)

The Celsius temperature scale is defined by the following equation:

$t = T - T_0$  where

$t$  = temperature in degrees Celsius,

$T$  = temperature in kelvins

$T_0 = 273.15 \text{ K}$

## **1.13 Measurement of Energy and Power**

### **1.13.1 Energy, Work and Quantity of Heat**

Joule (J) = as defined in the Second Schedule.

Kilojoule (kJ) = 1000 joules

Megajoule (MJ) = 1000 000 joules and all other multiples and sub-multiples as defined in the Second Schedule

Watt hour (Wh) =  $3.6 \times 10^3$  joules

kilowatt hour (kWh) = 1000 watthour

Electron volt (eV) = The energy acquired by an electron in passing through a potential difference of 1 volt in vacuum.

### **1.13.2 Power, Energy flow rate and Heat flow rate**

milliwatt (mW) = 1/ 1000 of a watt

watt (W) = as defined in the Second Schedule.

kilowatt (kW) = 1000 watts

Megawatt (MW) = 1000 000 watts and all other multiples and sub-multiples as defined in Schedule four.

### **1.14 Specific Energy**

#### **1.14.1 SI units**

kilojoules per kilogram (kJ/kg) = 1000 joules per kilogram

joule per kilogram (J/kg) = 1 joule per kilogram

#### **1.14.2 Other units**

joule per gram (J/g) = 1/1 000th joules per kilogram

### **1.15 Electric current**

#### **1.15.1 SI units**

ampere (A) = as defined in the First Schedule.

milliampere (mA) = 1/1 000th of ampere

microampere ( $\mu$ A) = 1/ 1 000 000th of ampere

## **1.16 Electromotive force and Potential difference**

### **1.16.1 SI units**

kilovolt (kV) = 1 000 volts

volt (V) = as defined in the Second Schedule.

millivolt (mV) = 1/1 000th of a volt

microvolt ( $\mu$ V) = 1/ 1 000 000th of a volt

## **1.17 Electric Capacitance**

### **1.17.1 SI Units**

henry (H) = as defined in the Second Schedule.

millihenry (mH) = 1/1 000th of a henry

microhenry ( $\mu$ H) = 1/ 1 000 000th of a henry

## **1.18 Electric resistance**

### **1.18.1 SI units**

megaohm ( $M\Omega$ ) = 1 000 000 ohms

kiloohm ( $k\Omega$ ) = 1 000 ohms

ohm ( $\Omega$ ) = as defined in the Second Schedule.

milliohm ( $m\Omega$ ) = 1/1 000th of an ohm

microohm ( $\mu\Omega$ ) = 1/1 000 000th of an ohm

## **1.19 Quantity of Electricity**

### **1.19.1 SI units**

coulomb (C) = as defined in the Second Schedule.

millicoulomb (mC) = 1/1000th of coulomb

microcoulomb ( $\mu\text{C}$ ) = 1/ 1 000 000th of coulomb

### **1.19.2 Other units**

amperehour (Ah) = 3600 coulombs

## **1.20 Luminous intensity**

### **1.20.1 SI units**

candela (cd) = as defined in the First Schedule.

## **1.21 Illumination**

### **1.21.1 SI units**

lux (lx) = as defined in the Second Schedule.

## **1.22 Luminous flux**

### **1.22.1 SI units**

lumen (lm) = as defined in the Second Schedule.

## **1.23 Activity**

### **1.23.1 SI units**

becquerel (Bq) = as defined in the Second Schedule.

millibecquerel (mBq) = 1/1 000th of becquerel

## **1.24 Absorbed dose**

### **1.24.1 SI units**

gray (Gy) = as defined in the Second Schedule

milligray (mGy) = 1/1 000th of gray

## **1.25 Exposure**

### **1.25.1 SI units**

coulomb per kilogram(C/kg)= as defined in the Second Schedule.



## ***FOURTH SCHEDULE***

### **PART 1** ***Unit outside of the SI units***

#### **Non-SI units accepted for use with the International System of Units**

<b>Quantity</b>	<b>Name of unit</b>	<b>Symbol for unit</b>	<b>Value in SI units</b>
time	minute	min	1 min = 60 s
	hour <sup>(a)</sup>	h	1 h = 60 min = 3600 s
	day	d	1 d = 24 h = 86 400 s
plane angle	degree <sup>(b, c)</sup>	°	1° = (π/180) rad
	minute	'	1' = (1/60)° = (π/ 10 800) rad
	second <sup>(d)</sup>	"	1" = (1/60)' = (π/ 648 000) rad
area	hectare <sup>(e)</sup>	ha	1 ha = 1 hm <sup>2</sup> = 10 <sup>4</sup> m <sup>2</sup>
volume	liter <sup>(f)</sup>	L	1 L = 1 dm <sup>3</sup> = 10 <sup>3</sup> cm <sup>3</sup> = 10 <sup>-3</sup> m <sup>3</sup>
mass	metric ton <sup>(g)</sup>	t	1 t = 10 <sup>3</sup> kg

**Non-SI units whose values in SI units must be obtained experimentally**

**PART 11**

**Unit accepted for use with the SI**

energy	electronvolt <sup>(b)</sup>	eV	1 eV = 1.602 176 53(14) · 10 <sup>-19</sup> J
mass	dalton, <sup>(c)</sup> unified atomic mass unit	Da u	1 Da = 1.660 538 86(28) · 10 <sup>-27</sup> kg 1 u = 1 Da
length	astronomical unit <sup>(d)</sup>	ua	1 ua = 1.495 978 706 91(6) · 10 <sup>11</sup> m
<b>Natural units (n.u.)</b>			
speed	n.u. of speed (speed of light in vacuum)	$c$	299 792 458 m/s (exact)
action	n.u. of action	$\hbar$	1.054 571 68(18) · 10 <sup>-34</sup> J s
mass	n.u. of mass (electron mass)	$m_e$	9.109 3826(16) · 10 <sup>-31</sup> kg
time	n.u. of time	$\hbar/(m_e c^2)$	1.288 088 6677(86) · 10 <sup>-21</sup> s
<b>Atomic units (a.u.)</b>			
charge	a.u. of charge (elementary charge)	$e$	1.602 176 53(14) · 10 <sup>-19</sup> C
mass	a.u. of mass (electron mass)	$m_e$	9.109 3826(16) · 10 <sup>-31</sup> kg
action	a.u. of action (reduced Planck constant)	$\hbar$	1.054 571 68(18) · 10 <sup>-34</sup> J s
length	a.u. of length, bohr (Bohr radius)	$a_0$	0.529 177 2108(18) · 10 <sup>-10</sup> m
energy	a.u. of energy, hartree (Hartree energy)	$E_h$	4.359 744 17(75) · 10 <sup>-18</sup> J
time	a.u. of time	$\hbar/E_h$	2.418 884 326 505(16) · 10 <sup>-17</sup> s

## Other non-SI units

### PART 111

Quantity	Name of unit	Symbol for unit	Value in SI units
pressure	bar <sup>(a)</sup>	bar	1 bar = 0.1 MPa = 100 kPa = 10 <sup>5</sup> Pa
	millimeter of mercury <sup>(b)</sup>	mmHg	1 mmHg 133.322 Pa
length	ångström <sup>(c)</sup>	Å	1 Å = 0.1 nm = 100 pm = 10 <sup>-10</sup> m
distance	nautical mile <sup>(d)</sup>	M	1 M = 1852 m
area	barn <sup>(e)</sup>	b	1 b = 100 fm <sup>2</sup> = (10 <sup>-12</sup> cm) <sup>2</sup> = 10 <sup>-28</sup> m <sup>2</sup>
speed	knot <sup>(f)</sup>	kn	1 kn = (1852/3600) m/s
logarithmic ratio quantities	neper <sup>(g, i)</sup>	Np	[see footnote (j) regarding the numerical value of the neper, the bel, and the decibel]
	bel <sup>(h, i)</sup>	B	
	decibel <sup>(h, i)</sup>	dB	

**FIFTH SCHEDULE**

**PREFIXES\* FOR MULTIPLES AND SUB-MULTIPLES AND SUB-MULTIPLES AND SUB-MULTIPLES AND SYMBOLS**

<b>Prefix</b>	<b>Symbol</b>	<b>Definition</b>
yotto	Y	$10^{24}$
zetto	Z	$10^{21}$
exa	E	$10^{18}$
peta	P	$10^{15}$
tera	T	$10^{12}$
giga	G	$10^9$
mega	M	$10^6$
kilo	k	$10^3$
hecto	h	$10^2$
deka	da	$10^1$
deci	d	$10^{-1}$
centi	c	$10^{-2}$
milli	m	$10^{-3}$
micro	$\mu$	$10^{-6}$
nano	n	$10^{-9}$
pico	p	$10^{-12}$
femto	f	$10^{-15}$
atto	a	$10^{-18}$
zepto	z	$10^{-21}$
yocto	y	$10^{-24}$

**NOTE:** \*SI prefixes are not applicable to the base unit—"kilogram" but applicable to the one-thousandth part thereof, namely the "gram". SI prefixes may be used in conjunction with some of the units provided in the Fourth Schedule.

## SIXTH SCHEDULE

### *Customary Units of measurement deemed to be derived from the International System of Weights and Measures (SI)*

Name of Unit	Abbreviation of Symbol	Base SI Unit from which derived	Value
<b>UNIT OF MASS</b>			
<i>(a) Avoirdupois Series:</i>			
Pound	lb	kilogram (kg)	0.45359237 kilogram
Grain ( $\frac{1}{7,000}$ lb)	gr	do.	These units shall have proportional values based on the value of the pound
Ounce ( $\frac{1}{16}$ lb)	oz	do.	
Stone (14 lb)	St	do.	
Quarter (28 lb)	Qr	do.	
Hundredweight (112 lb)	Cwt	do.	
Ton (2,240 lb)	—	do.	
<i>(b) Troy Series:</i>			
*Ounce Troy ( $\frac{12}{175}$ lb)	oz tr	do.	
<b>UNIT OF LENGTH</b>			
Yard	yd	metre	0.9144 metre
Mile (1,760 yd)	—	do.	These units shall have proportional values based on the value of the yard
Foot ( $\frac{1}{3}$ yd)	ft	do.	
Inch ( $\frac{1}{36}$ yd)	in	do.	

Name of Unit	Abbreviation of Symbol	Base SI Unit from which derived	Value
<b>UNIT OF CAPACITY MEASUREMENT</b>			
Gallon (UK or Imperial)		metre	0.00454609 cubic metre (m <sup>3</sup> )
Gallon (US)		metre	0.003785412 cubic metre (m <sup>3</sup> )
Minim ( <sup>1</sup> / <sub>76,800</sub> gal)		do.	
Fluid drachm ( <sup>1</sup> / <sub>1,280</sub> gal)	fl dr	do.	These units shall have proportional values based on the value of the gallon
Fluid ounce ( <sup>1</sup> / <sub>160</sub> gal)	fl oz	do.	
Pint ( <sup>1</sup> / <sub>8</sub> gal)	pt	do.	
Quart ( <sup>1</sup> / <sub>4</sub> gal)	qt	do.	
*Barrel	bbl	metre	0.1589873 cubic metre (m <sup>3</sup> )
<b>UNITS OF VOLUME</b>			
Cubic yard	cu yd	metre	0.7645548757 cubic metre (m <sup>3</sup> )
Cubic foot ( <sup>1</sup> / <sub>27</sub> cu yd)	cu ft	do.	The units shall have proportional values based on the value of the cubic yard
Cubic inch ( <sup>1</sup> / <sub>46,656</sub> cu yd)	cu in	do.	

Name of Unit	Abbreviation of Symbol	Base SI Unit from which Derived	Value
<b>UNIT OF AREA</b>			
Square mile	—	metre	2.5899 square kilometres (km <sup>2</sup> )
Acre	—	metre	4046.87 square metres (m <sup>2</sup> )
Square yard	sq yd	metre	0.8361 square metre (m <sup>2</sup> )
Square foot	sq ft	metre	0.0929 square metre (m <sup>2</sup> )
Square inch	sq in	metre	645.16 square millimetres (mm <sup>2</sup> )

## SEVENTH SCHEDULE

### WEIGHTS AND MEASURES LAWFUL FOR USE IN TRADE

#### 1.1 Linear measures

Measures of —

100 metres

50 metres

30 metres

20 metres

10 metres

5 metres

3 metres

2 metres

1 metre

1 centimetre

1 millimetre

1 micrometre

#### 1.2 Square Measures

Measures of, or any multiple of, 1 square decimetre

#### 1.3 Cubic measures

Measures of, or any multiple of, the cubic decimetre =

0.001 m<sup>3</sup>



**1.4 Capacity measures**

Measures of —  
10 litres or any multiple of 10 litres  
5 litres  
2.5 litres  
2 litres  
1 litre  
500 millilitres  
250 millilitres  
200 millilitres  
100 millilitres  
50 millilitres  
25 millilitres  
20 millilitres  
10 millilitres  
5 millilitres  
2 millilitres  
1 millilitre

**1.5 Weights**

**1.5.1 Weights of —**

50 kilograms  
20 kilograms  
10 kilograms  
5 kilograms  
2 kilograms  
1 kilogram

500 grams	500 milligrams
200 grams	200 milligrams
100 grams	100 milligrams
50 grams	50 milligrams
20 grams	20 milligrams
10 grams	10 milligrams
5 grams	5 milligrams

2 grams

2 milligrams

1 gram

1 milligram

1.5.2 **Weights of —**

500 carats (metric)

200 carats (metric)

100 carats (metric)

50 carats (metric)

20 carats (metric)

10 carats (metric)

5 carats (metric)

2 carats (metric)

1 carat (metric)

0.5 carat (metric)

0.25 carat (metric)

0.2 carat (metric)

0.1 carat (metric)

0.05 carat (metric)

0.02 carat (metric)

0.01 carat (metric)

## EIGHTH SCHEDULE

### RELATIONSHIP BETWEEN THE SI AND THE STANDARDS OF WEIGHT AND MEASURE REPEALED

#### PART I

##### Units of weights or mass

1g (gram)	=	0.035273 962 oz
1kg (kilogram)	=	2,204 622 622 lb
1 t (tonne) also referred to as a metric ton	=	1000 kg
1 mg (milligram)	=	0,015 432 358 gr (grains)
1 metric carat	=	3,086 47 gr (grains) = 0.2 g
1 lb (av)	=	0,453 592 37 kg
1 ton (long ton)	=	1,016,046908 kg
1 oz	=	28,349 523 125 g

#### PART II

##### Volume and Capacity

1 m <sup>3</sup> (cubic metre)	=	1,307 950 6 cu yd. (cubic yards)
1 dm <sup>3</sup> (cubic decimetre)	=	0.035 314 667 cu ft. (cubic foot)
1 cm <sup>3</sup> (cubic centimetre)	=	0.061 023 744 cu in. (cubic inch)
1L (litre or 1 dm <sup>3</sup> )	=	0.219 969 25 gal (UK)
1 gal (imp)	=	4,546 09 L (litres)
1 pt (UK)	=	0,568 262 L (litres)
1 fl. oz (UK)	=	28, 413 08 mL (millitres)
1 fl. oz (US)	=	29,573 53 mL (millitres)

#### PART III

##### Length

1 m (metre)	=	1093 613 yd (yards)
1 km (kilometre)	=	0,621 371 19 mi (miles)
1 cm (centimetre)	=	0,393 700 79 in (inches)
1 mm (millimetre)	=	0,039 370 079 in (inches)
1 in (inch)	=	2,54 cm or 25.4 mm
1 yd (yard)	=	0,914 4 m
1 mi (mile)	=	1,609 344 km

### Area (Surface)

1 km <sup>2</sup> (square kilometre)	=	247,105 38 ac. (acres)
		0,386 102 17 sq mi (square mile)
1 ha (hectares) = 10 000m <sup>2</sup>	=	2,471 053 8 ac. (acres)
1 are = 100 m <sup>2</sup>	=	199, 599 sq yd. (square yards)
1 m <sup>2</sup> (square metre)	=	1,195 99 sq yd. (square yards)
1 mm <sup>2</sup> (square millimetre)	=	0,001 55 sq in. (square inches)
1 ac (acre)	=	4 046,856 4 m <sup>2</sup> or
		0,404 685 6 ha
1 sq mi (square mile)	=	2,589 988 336 km <sup>2</sup> or
		258, 998 881 ha
1 sq in. (square inch)	=	645, 16 mm <sup>2</sup>
1 sq yd. (square yard)	=	0,836 127 m <sup>2</sup>

**NINETH SCHEDULE**

**CERTIFICATE OF APPOINTMENT OF \*CHIEF  
INSPECTOR/\*INSPECTOR**

In exercise of the powers conferred upon me by section 20 of the Metrology Act I hereby certify that Mr./Miss./Mrs. .... has been duly appointed as \*Chief Inspector/\*Inspector for the purposes of this Act.

\_\_\_\_\_  
Signature of **\*Chief Inspector/\*Inspector**

\_\_\_\_\_  
Date

\_\_\_\_\_  
Minister

\_\_\_\_\_  
Date

\*Delete where in applicable

**TENTH SCHEDULE**

**Table of Fees for Services (To be included)**