Electrical Trades College

ASP Level 2 Electrician

Test 13

Name	
Student Number	
Signature of student	
Name of Assessor	
Signature of assessor	
Date	
Result	
Comment by assessor	

Lesson 13 Test

1) Smart meters send information to your retailer
   a) in analog format
   b) digitally.

2) Who can install the meter?
   a) Qualified Supervisor
   b) Electrical Contractor
   c) Accredited Service Provider

3) The board needs to be replaced to make sure it complies with
   a) AS3000

b) AS3008
c) Current safety standard

4) Solar panels must remain ( ) until a new smart meter has been installed.
a) Active
b) inactive

5) All residential buildings constructed after ( ) are required to have smart meters
a) 1 December 2015
b) 1 December 2017
c) 1 December 2020
d) 1 December 2021

6) Residents in apartments and townhouses can not install smart meters.
a) True
b) False

7) The meter board will be inspected to make sure:
a) it is big enough to your smart meter and potentially other meters down the track
b) the wiring is not degraded
c) it has an isolation fuse.
d) All above

8) Disconnecting and reconnecting using the smart meter will be much faster
a) True
b) False

9) You will be asked to get a safety inspection if your electricity has been switched off for more than ( ) months
a) One
b) Three
c) Six
d) Twelve

10) A smart meter that does not transmit data remotely is known as a
a) KHW Meter
b) Power meter
c) Type 4A meter

Electrical Trades College

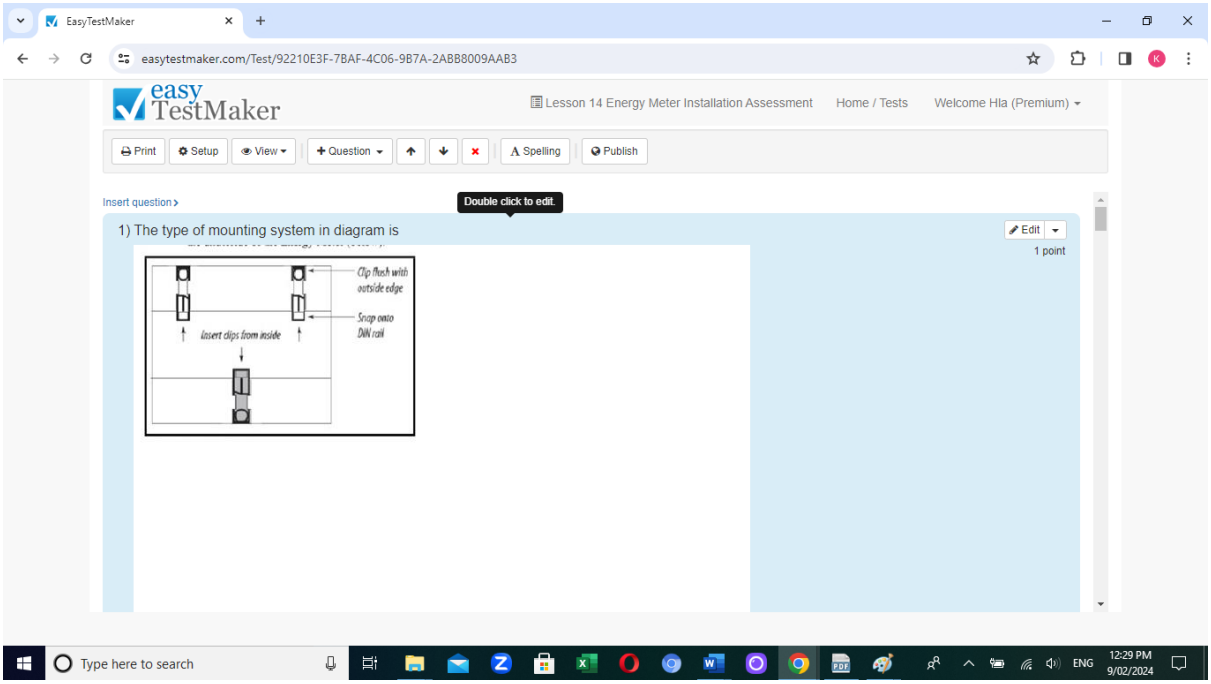
ASP Level 2 Electrician

Test 14

Name	
Student Number	
Signature of student	
Name of Assessor	
Signature of assessor	
Date	
Result	
Comment by assessor	

Lesson 14 Test

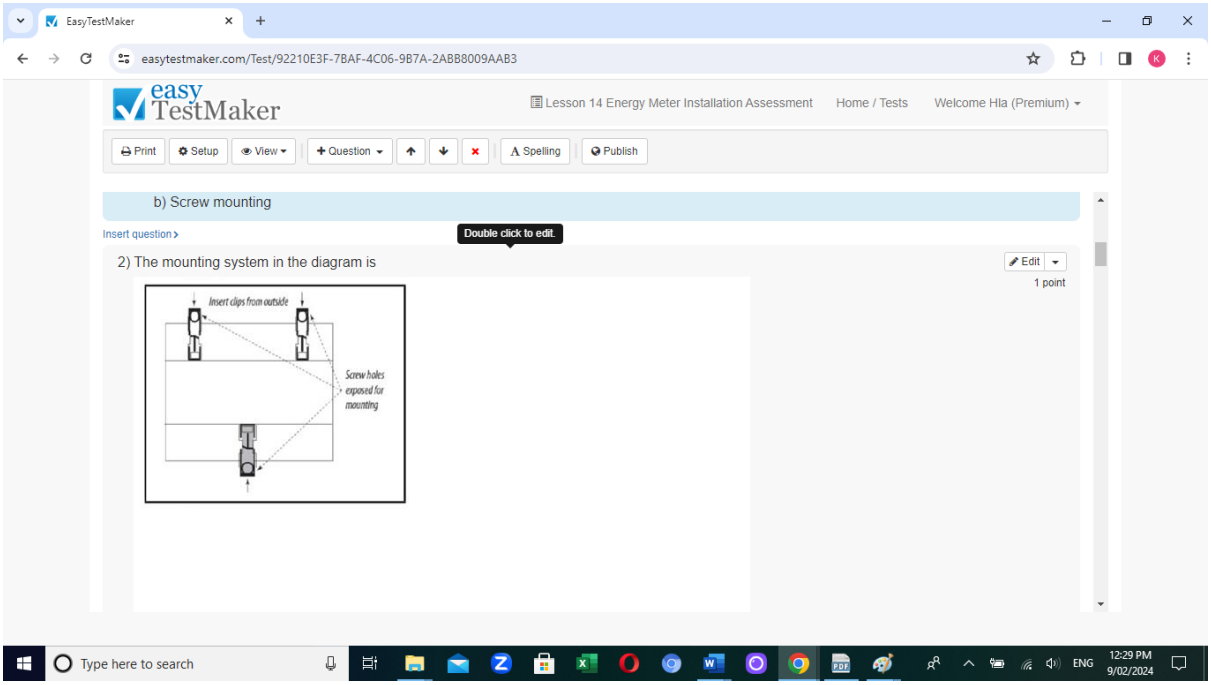
1) The type of mounting system in diagram is



a) Din rail mounting

b) Screw mounting

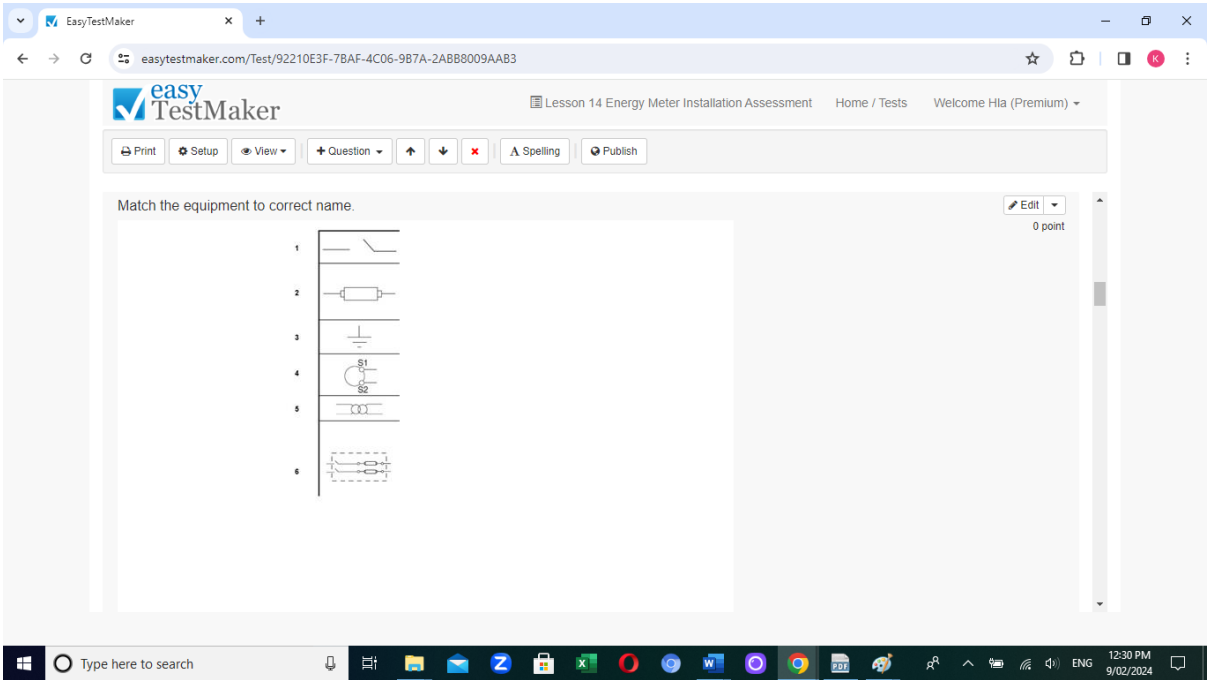
2) The mounting system in the diagram is



a) Din rail mounting

b) Screw mounting

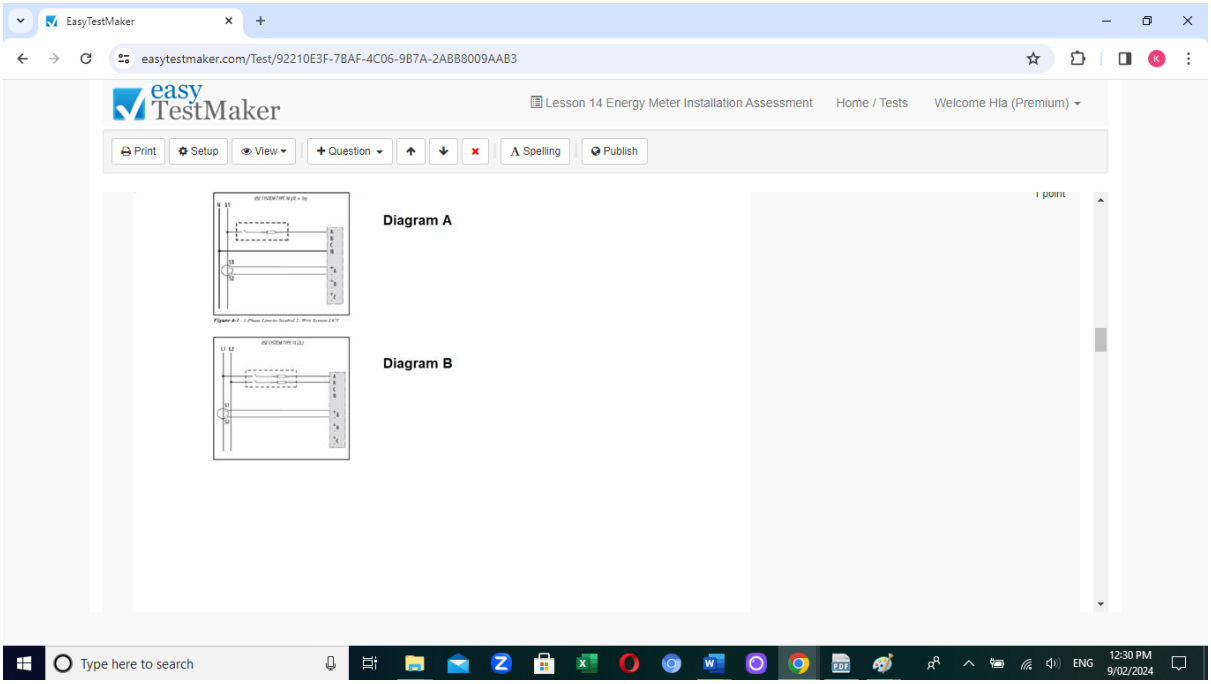
Match the equipment to correct name.



3) **b** 1
4) **d** 2
5) **e** 3
6) **f** 4
7) **c** 5
8) **a** 6

a) Voltage disconnect switch
b) Fuse
c) Earth ground
d) Current transducer
e) Potential transformer
f) Protection containing voltage discon

9) If there is no neutral wire is readily available, which connection method should be utilized.

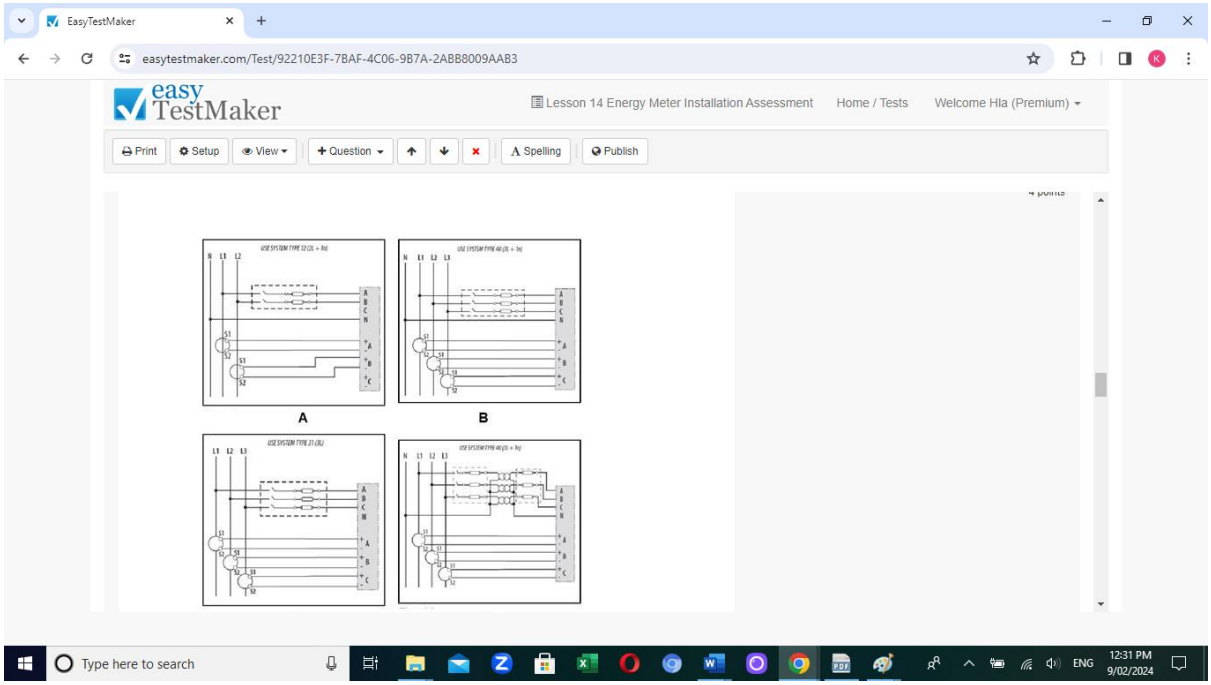


a) A

b) B

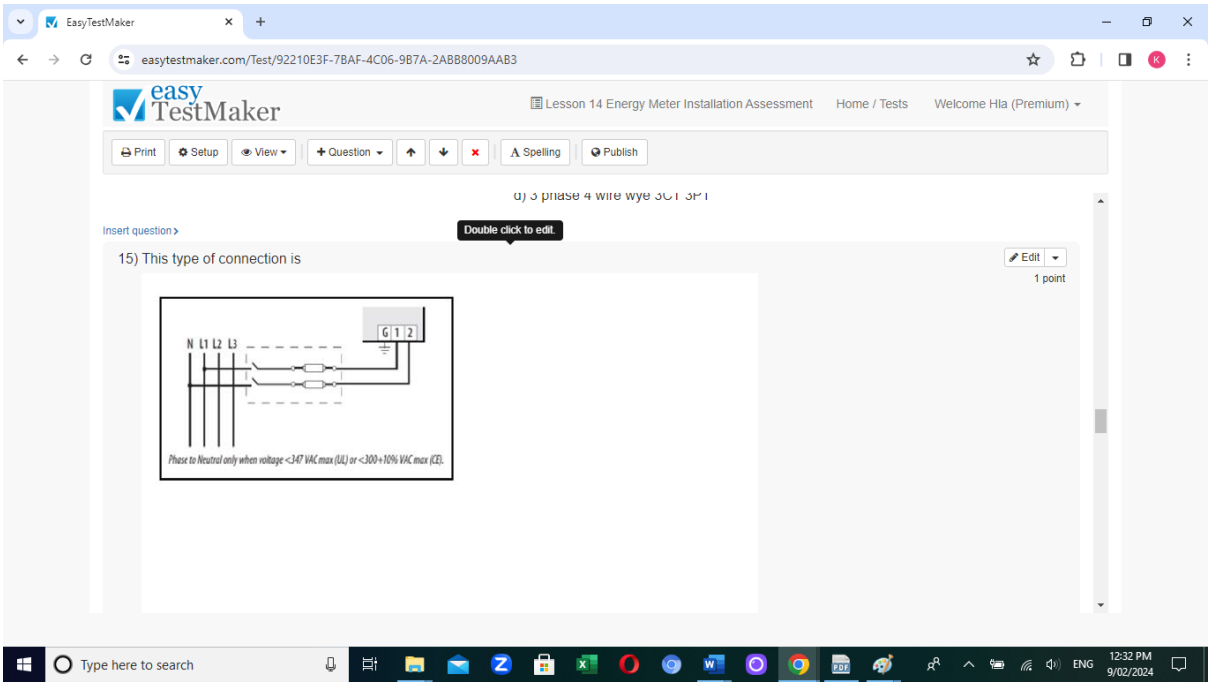
10)

Match the circuit diagram to correct type of connection



11) **b** A 12) **c** B 13) **d** C 14) **a** D	a) Single phase direct voltage connection 2 CT b) Three phase 4 wires wye direct voltage input connection 3 CT c) 3 phase 3 wires 3 CT no PT d) 3 phase 4 wire wye 3CT 3PT

15) This type of connection is

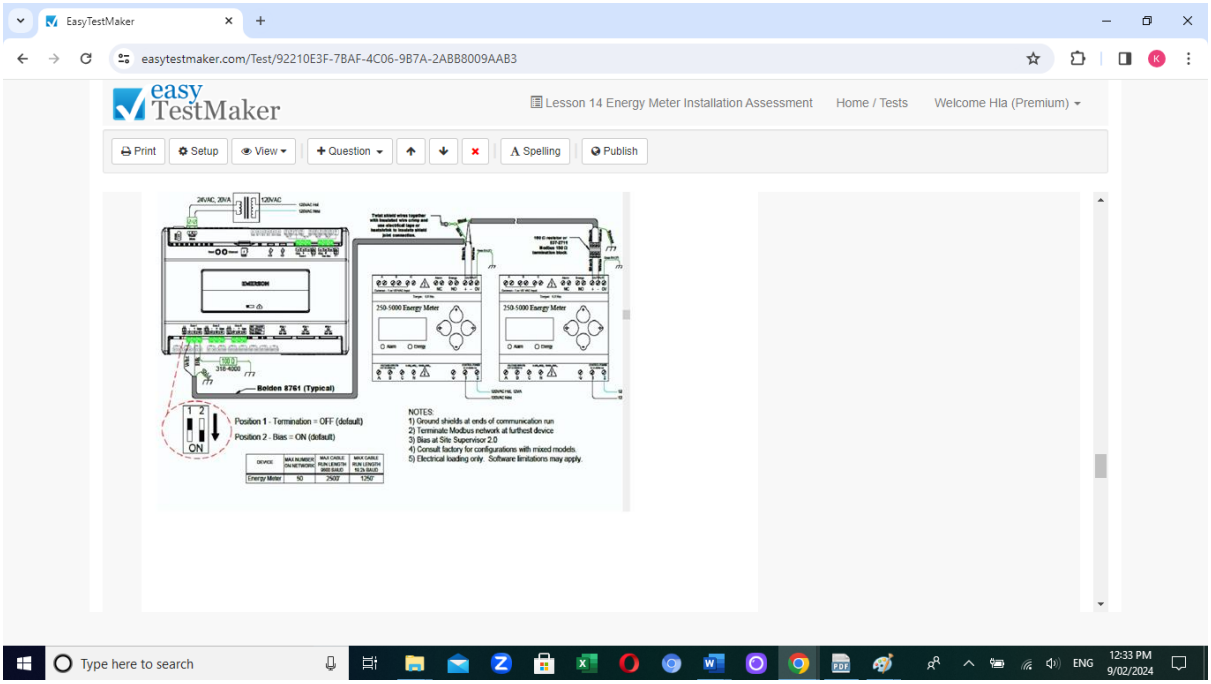


a) Direct current control power (Phase to phase)

b) Direct current control power (Phase to neutral)

c) Control power transformer CPT

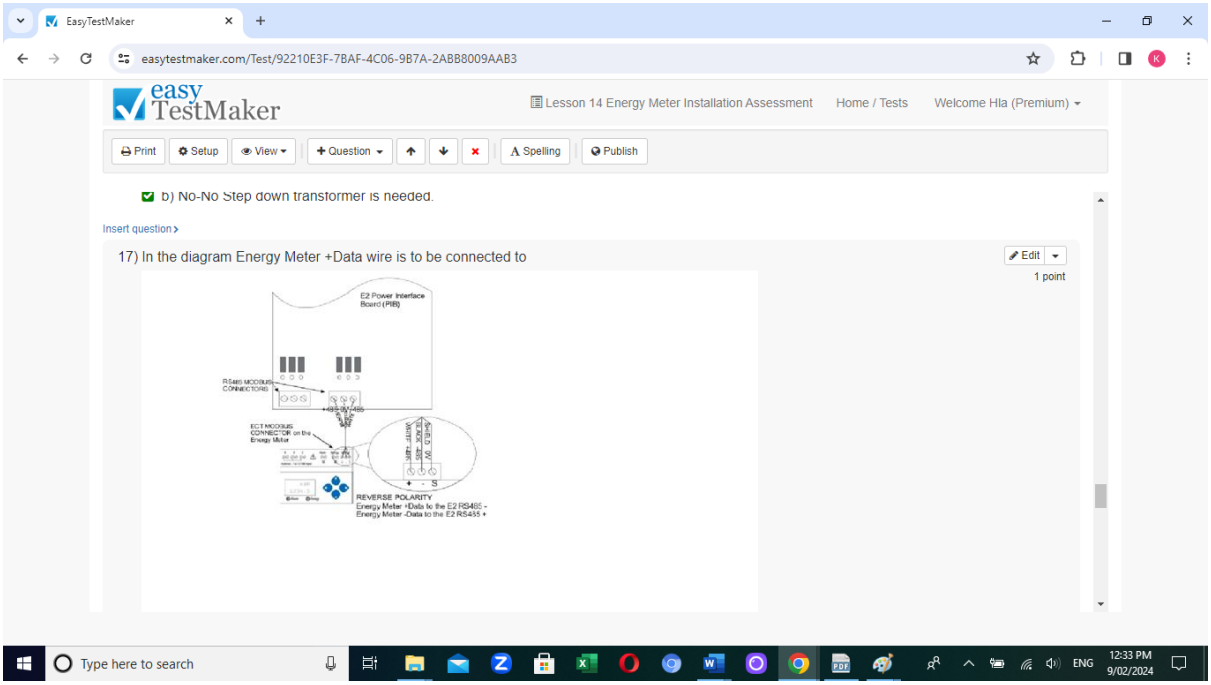
16) Can this smart meter be directly connected to Australian power supply?



a) Yes- It can be connected

b) No-No Step down transformer is needed.

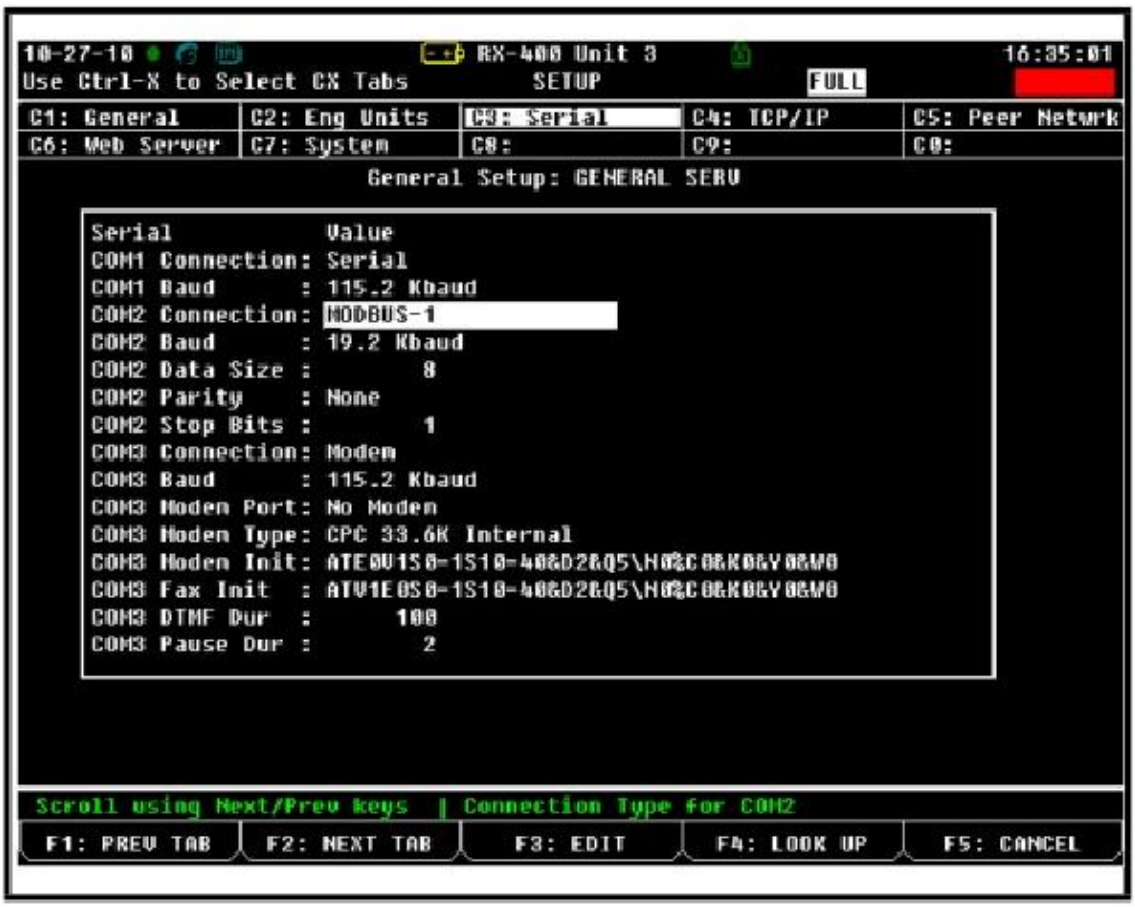
17) In the diagram Energy Meter +Data wire is to be connected to



a) E2 RS485 - terminal

b) E2 RS485 + terminal

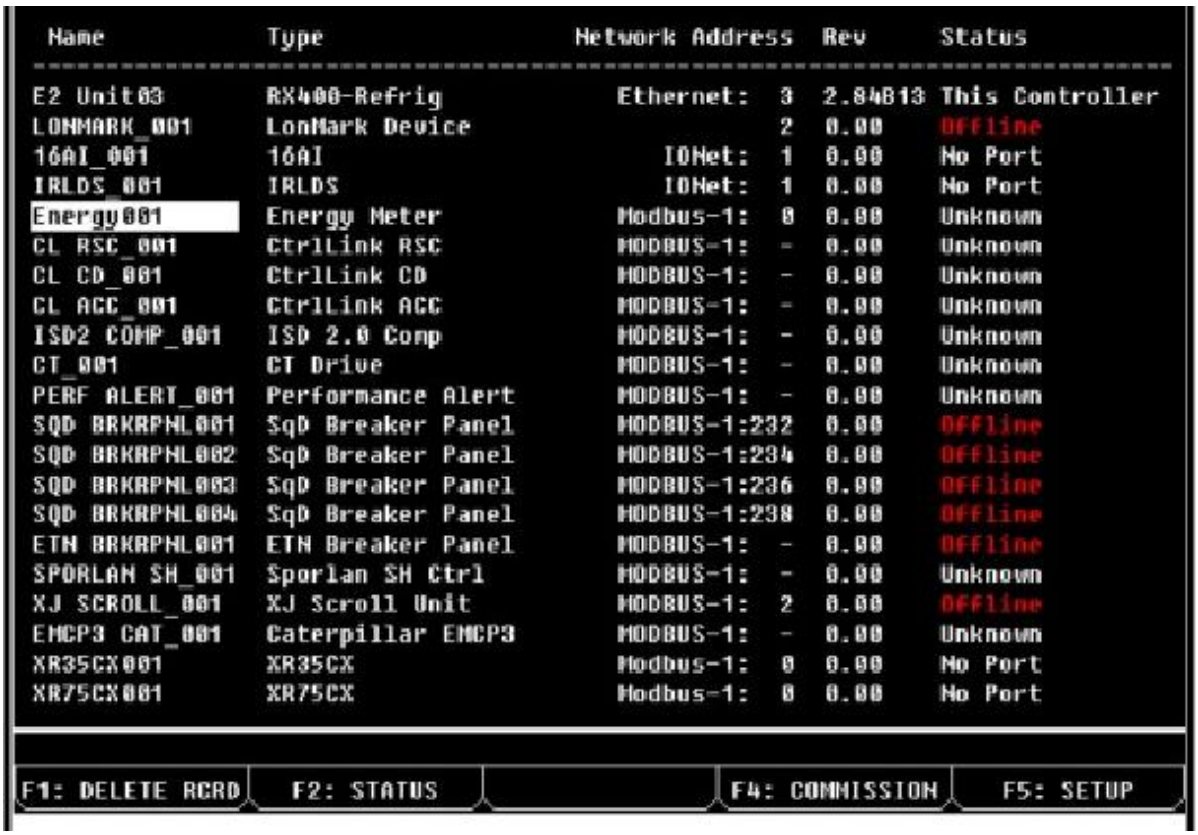
18) This screen is



a) Serial communication manager screen

b) Network Summary Screen

19) This screen is



a) Serial communication manager screen

b) Network summary screen

Electrical Trades College

ASP Level 2 Electrician

Test 15

Name	
Student Number	
Signature of student	
Name of Assessor	
Signature of assessor	
Date	
Result	
Comment by assessor	

Lesson 15 Test

1) Where the customer does not comply with these Rules or an accepted alternative method the electricity distributor may:
   a) charge the higher fees to connect the service
   b) find the good contractor to do the necessary work
   c) Refuse, suspend or discontinue supply,

2) Electrical supply to Sydney is provided by
   a) Ausgrid
   b) Endeavour Energy
   c) Essential Energy

3) A person accredited to provide customer connection services in accordance with the Electricity Supply Act & Regulations.

a) Qualified Supervisor-Electrician

b) Electrical Contractor

c) Accredited Service Provider (ASP)

4) The junction where the Distribution System is connected (by means of a Connection Device) to the Customers Installation is

a) Point of supply

b) Protection point

c) Connection Point

5) The conductors between the Connection Point and the main Service Equipment Enclosure is

a) Consumer main

b) Sub main

c) Final subcircuit

6) The department which implement the Energy, Water and Portfolio Strategy and which is responsible for the preparation and publication of the Rules. is

a) NSW Office of Fair Trading

b) NSW Department of Commerce

c) NSW Department of Planning and Environment (DPE)

7) As defined by the Electricity (Consumer Safety) Act 2004: any fixed appliances, wires, fittings, meters, apparatus or other electrical equipment used for (or purposes incidental to) the conveyance, measuring, control and use of electricity in a particular place, includes :Any electrical equipment (other than a meter) used, or intended for use, in the generation, transmission or distribution of electricity that is: (i) Owned or used by an electricity supply authority, or (ii) Located in a place that is owned or occupied by such an authority. (a) Any electrical equipment (other than a meter) used, or intended for use, in the generation, transmission or distribution of electricity that is:(i) Owned or used by an electricity supply authority, or(ii) Located in a place that is owned or occupied by such an authority..

a) True

b) False

8) Metering Equipment
Equipment used to measure the electricity consumption at a metering installation as defined by the National Electricity Rules.
This includes electricity distributor load control equipment. or electricity distributor non-revenue metering.

a) True

b) False

9) The point or points, at which the mechanical loads of overhead conductors of an overhead service or overhead consumer's
mains are terminated on a customer's building, pole or structure is

a) Point of attachment

b) Point of supply

c) Point of protection

10) Any equipment which enables the electricity distributor to operate and monitor its network that is permitted under the National Electricity Rules, such as network devices.

a) Properties of electrical supply company

b) Government properties

c) Service equipment

11) The device located on the installation side, or forming part of, the Connection Point that provides the protection is

a) Service Protection Device (SPD)

b) Catenary wire

c) Consumer main

12) Metering installation that are not connected to a telecommunications network and are not required to be remotely read. is

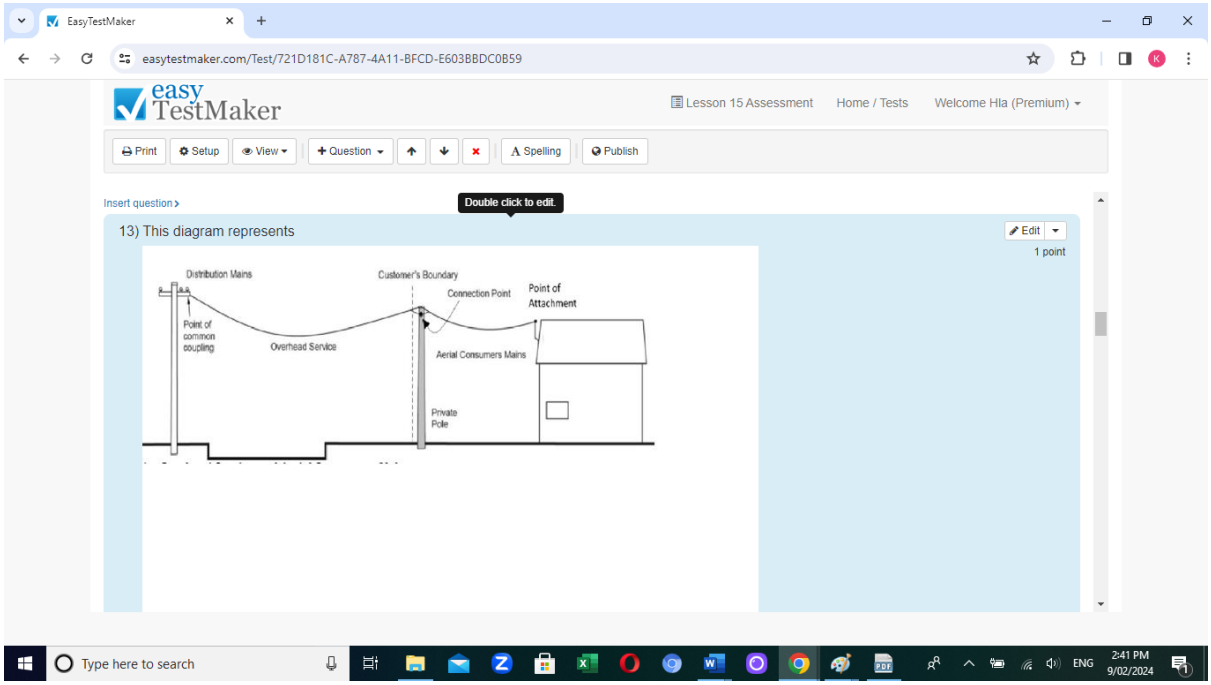
a) Type 4 Meter

b) Type 4A Meter

c) Type 5 Meter

d) Type 6 Meter

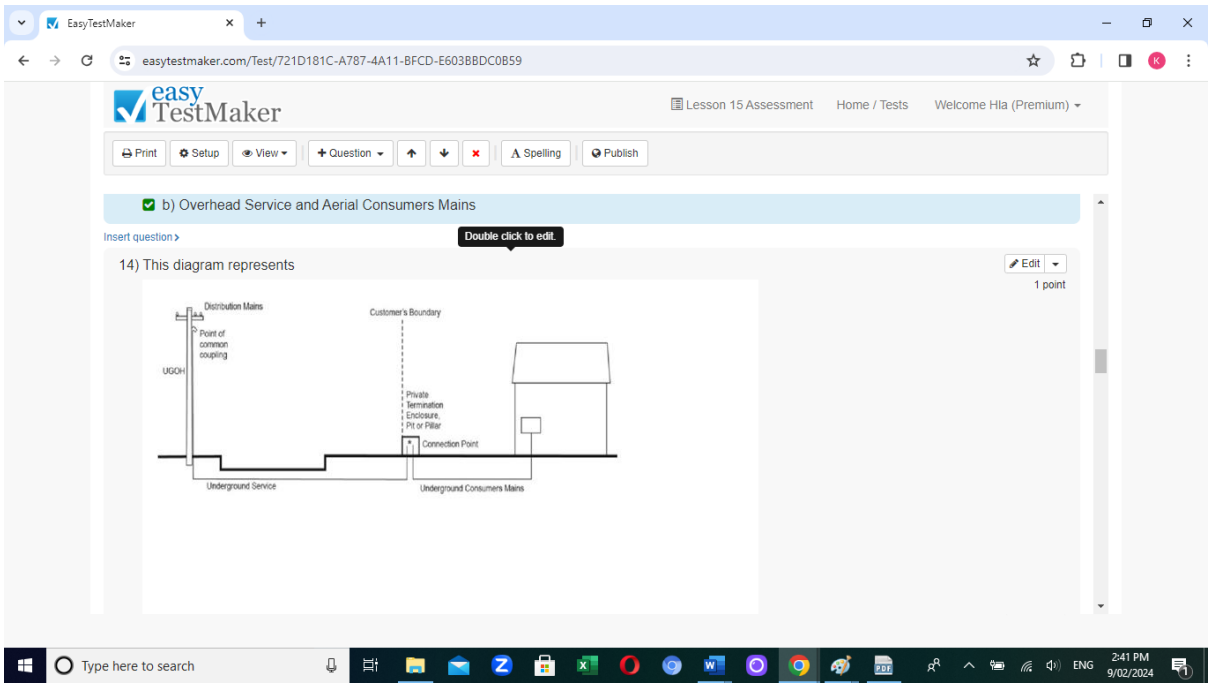
13) This diagram represents



a) Overhead Service

b) Overhead Service and Aerial Consumers Mains

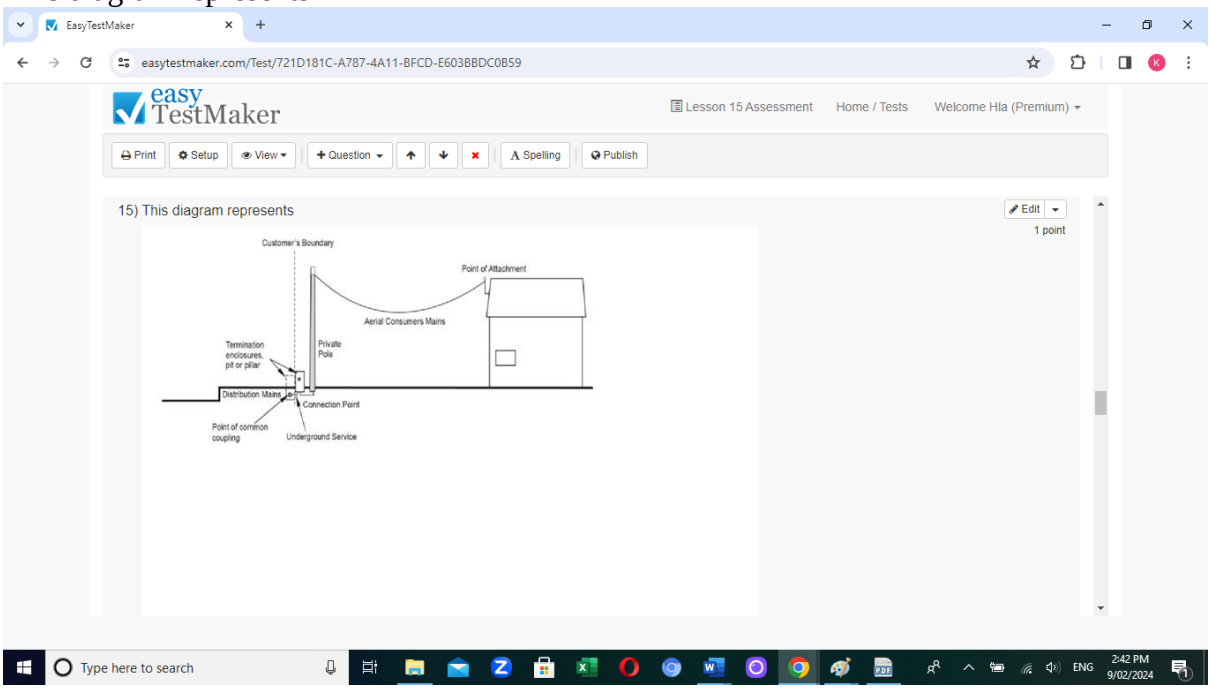
14) This diagram represents



a) Overhead Service and Underground Consumers Mains

b) Underground Service and Consumers Mains from overhead mains on electricity distributor's pole

15) This diagram represents



a) Underground Service and Aerial Consumers Mains

b) nderground Service and Underground Consumers Mains

c) Underground Services from Substation on public land

16) Electricity Supply Act which requires the electricity distributor to:

a) Connect customers under the provisions of a customer connection contract.

b) Develop and implement a plan setting out policies, practices and procedures with respect to the conduct of affairs.

c) All above

17) The NSW Department investigate the customer complaints and disputes about electrical installation work (including metering).

a) Department of Planning and Environment

b) NSW Police

c) NSW Department of Fair Trading

18) Strict restrictions on live electrical work :is stipulated by

a) The Work Health and Safety Act 2011 and the Work Health and Safety Regulation 2011 Division 4

b) Electricity Safety Act 1945 No 13 of 1946

c) ELECTRICITY SUPPLY ACT 1995

19) The electricity supply distributor should be contacted when the phase voltage at no load exceed in accordance with AS 60038 'Standard voltages' and AS 61000.3.100

a) 245V

b) 253V

c) 300 V

20) The insulation resistance between conductors and between conductors and earth of new services shall not be less than ( ) megohms when tested using a ( ) DC insulation resistance tester.

a) 1 Megaohm 500V

b) 50 Megaohm 250V

c) 50 Megaohm 500V

21) To supply A motor exceeding 2.0 kW, it needs

a) One phase and neutral

b) Two or three phases and neutral

c) Three phases and neutral

22) The voltage drop in the overhead or underground service should not exceed ( ) % of the nominal voltage at the PCC,

a) 3

b) 5

c) 10

23) Where embedded generation is connected, the maximum permissible voltage rise on the underground or overhead service must not exceed ( )%.

a) 1

b) 3

c) 5

24) The MEN connection must be at

a) customer's main neutral link

b) service neutral link

25) The person who is permitted to carry out the permanent disconnection and removal of overhead and underground services, electricity distributor owned meters and load control equipment from customers' premises.

a) Licensed Electrician

b) Electrical Contractor

c) Accredited and authorised service providers

26) The Electricity (Consumers Safety) Regulation 2015 requires that installation work on an electrical installation must:

a) Be compliant with AS/NZS 3000 the Wiring Rules.

b) Not be connected to the network unless the electricity distributor has permitted the connection to its distribution system.

c) Before commissioning be tested for safe operation and compliance with AS/NZS 3000 by a person authorised under the Home Building Act 1989 to do electrical wiring work without supervision

d) Be recorded and notified to the electricity distributor and the owner of the electrical installation within 7 days of:

e) Commissioning any installation work; and/or

f) Completion of any safety and compliance tests.

g) All above

27) When the load is connected between line to neutral, the Limit Applying to Changes of Line Current (A) at Continuous or Steady (less than four changes per hour)230V Phases switched simultaneously in 3 phase system is

a) 25

b) 50

c) 100

28) The reduction in voltage measured at the connection point to exceed ( ) % for more than 20 milliseconds.

a) 1

b) 3

c) 5

d) 10

29) The maximum demand in an active service conductor is not more than ( )A above the current in any other active service conductor

a) 5
b) 10
c) 15
d) 25

30) The nominal prospective short circuit current at the PCC for services up to 400A will be

a) 6 KA
b) 10 KA
c) 25 KA

31)

Low voltage customer switchboards with ratings of more than 100A per phase can be installed freely

a) True
b) False

32) A bus section coupler must be connected at

a) Line side of installation main switch
b) Consumer side of installation main switch

33) Termination of Cables
The customer must provide suitable terminating devices if required and enough cable to allow termination at the PCC nominated by the distributor.

a) True
b) False

34) The customer must maintain the power factor of the electrical installation at a value not less than ( )lagging.

a) 0.7
b) 0.8
c) 0.9
d) 0.95

35) The clause number of NSW Electrical Service Rule regarding Standby Generation is

a) 1.2.10
b) 1.3.4
c) 1.17.13
d) 1.15.15

Electrical Trades College

ASP Level 2 Electrician

Test 16

Name	
Student Number	
Signature of student	
Name of Assessor	
Signature of assessor	
Date	
Result	
Comment by assessor	

Lesson 16 Test

1) The customer or metering provider must arrange to provide and install
   a) Meter Protection Device(s), unless the device is also a Service Protection Device
   b) Service and Metering Neutral Links
   c) Metering and load control devices
   d) The meter/switchgear enclosure
   e) Associated wiring and connections in accordance with AS/NZS 3000
   f) Any other service or metering equipment required
   g) All above

2) Work can be done on existing meter or switchboard panels that may contain asbestos within electrical installations,

a) Yes
b) No

3) The point of attachment (POA) is determined by
a) Customer
b) Electrical Contractor
c) Electricity Distributor

4) Service riser brackets are to be supplied by
a) Customer
b) Electrical Contractor
c) Electricity Distributor

5) Neutral bonds are required for riser brackets and metal fascia. For metal fascia's a ( ) earth needs to be installed from fascia to the multiple earthed neutral (MEN) point.
a) 1mm
b) 3mm
c) 6mm

6) Structures such as carports and pergolas can be erected immediately below the pole end or the point of attachment.
a) True
b) False

7) The conduit must be laid at a depth which provides( ) of cover to finished ground level for ( ) conduits, and ( )of cover for larger conduits, with orange marker tape installed ( ) above the underground, and these installation and marker depths must be maintained for its entire length.
a) 600mm, 100mm, 850mm 300mm
b) 600mm, 50mm, 850mm 300mm
c) 600mm, 50mm, 850mm 250mm
d) 500mm, 50mm, 850mm 300mm

8) The conduit rises to the metering enclosure or other terminating position only one bend of 90 degrees or less is permitted, having a radius as per clause ( ) of the Service & Installation Rules
a) 3.9.2
b) 4.8.7
c) 5.6.9

9) All 50mm conduits must be provided with ( )of minimum 6mm diameter, protruding at least 600mm at each end of the conduit as per clause 3.9.4 of the Service & Installation Rules.
a) a general-purpose synthetic polypropylene filament rope

b) a metallic chain
c) a nylon rope

10) Meter box 1500mm needs
a) 2000mm to top of box
b) 2800mm to top of box

Electrical Trades College

ASP Level 2 Electrician

Test 17

Name	
Student Number	
Signature of student	
Name of Assessor	
Signature of assessor	
Date	
Result	
Comment by assessor	

Lesson 17 Energy Meter Lecture

Page 9 to 23 Electricity Metering Circuits

1) The consumer is supplied 1 Phase electricity at one voltage in
   a) 1 Phase 2-Wire system
   b) 1 Phase 3-Wire system

2) The transformer secondary circuits are isolated from the primary circuits in
   a) 1 phase 2 wire system
   b) 1 phase 3 wire system

3) To provide the measurement accuracy in all loading conditions.

a) 2 Current Sensors 2 Voltage Sensors are to be utilized

b) A voltage sensor is connected between Line 2 and neutral (ground)

c) A voltage sensor is connected between Line 1 and neutral (ground)

d) A current sensor is added to Line 1

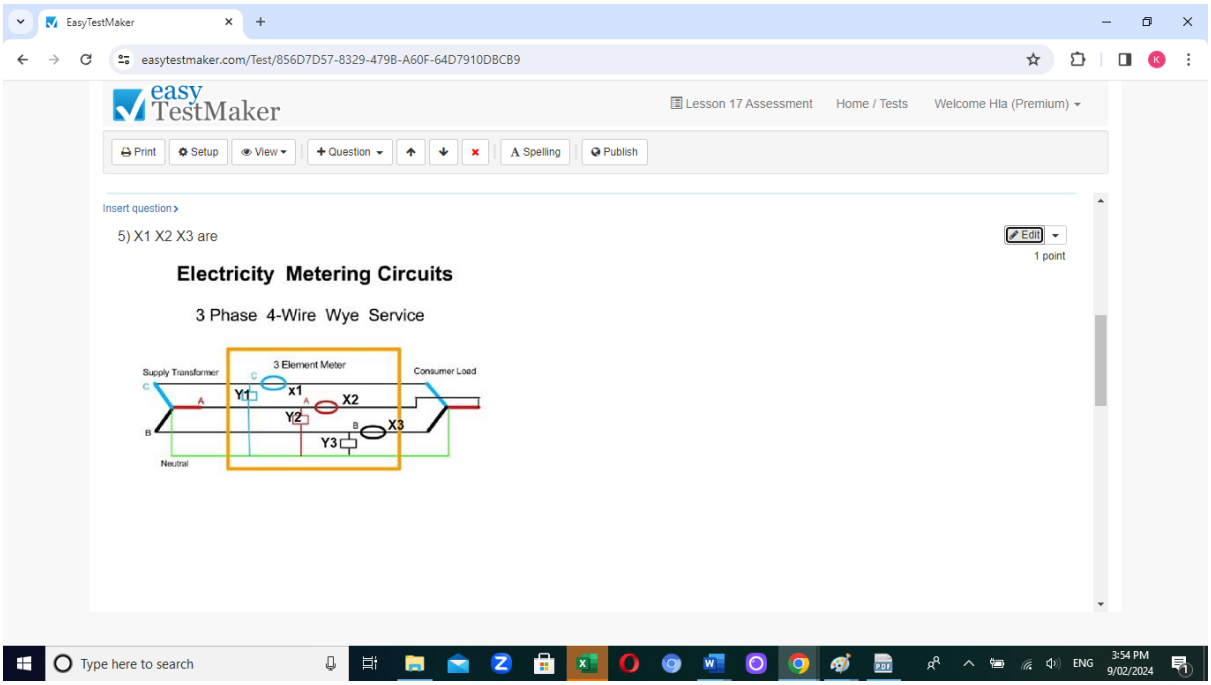
4) If there is a limited supply of polyphase power. which system to be used to measure three phase power?

a) 3 Phase 4-Wire closed Delta

b) 3 Phase 4-Wire Open Delta

c) 3 Phase 4-Wire Star

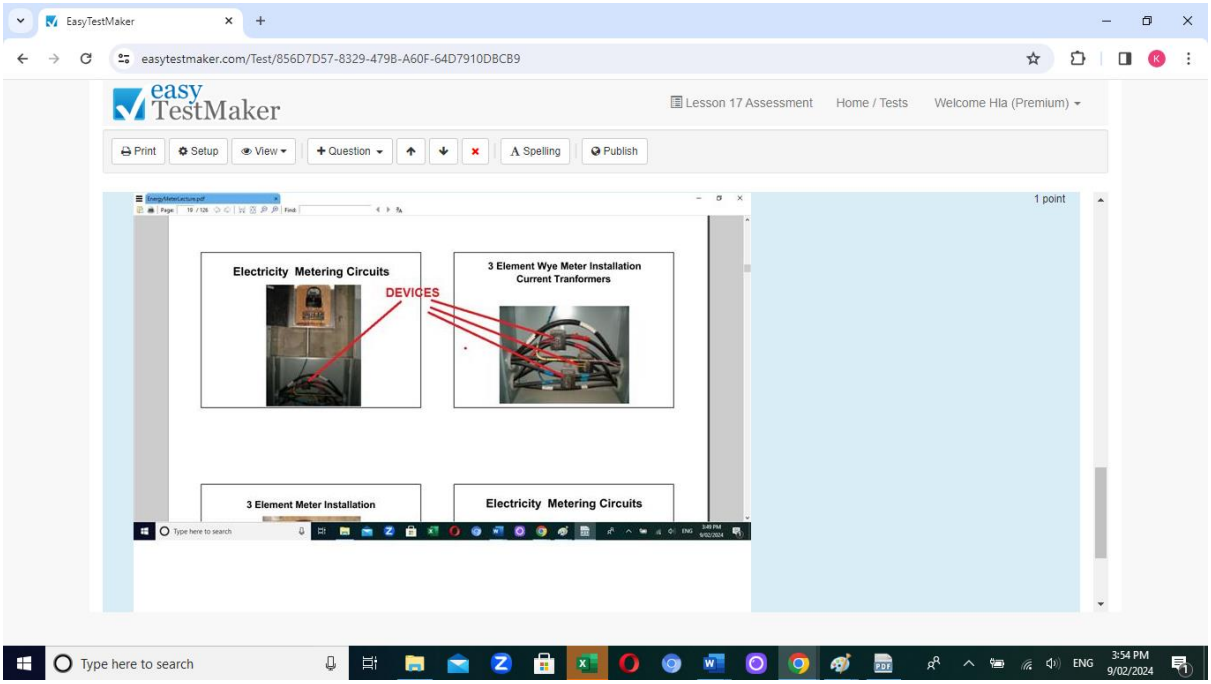
5) X1 X2 X3 are



a) Current sensors

b) Voltage sensors

6) In the photo, the devices indicated by line are



a) Potential Transformers

b) Current Transformers

c) Fuses

d) Jumpers

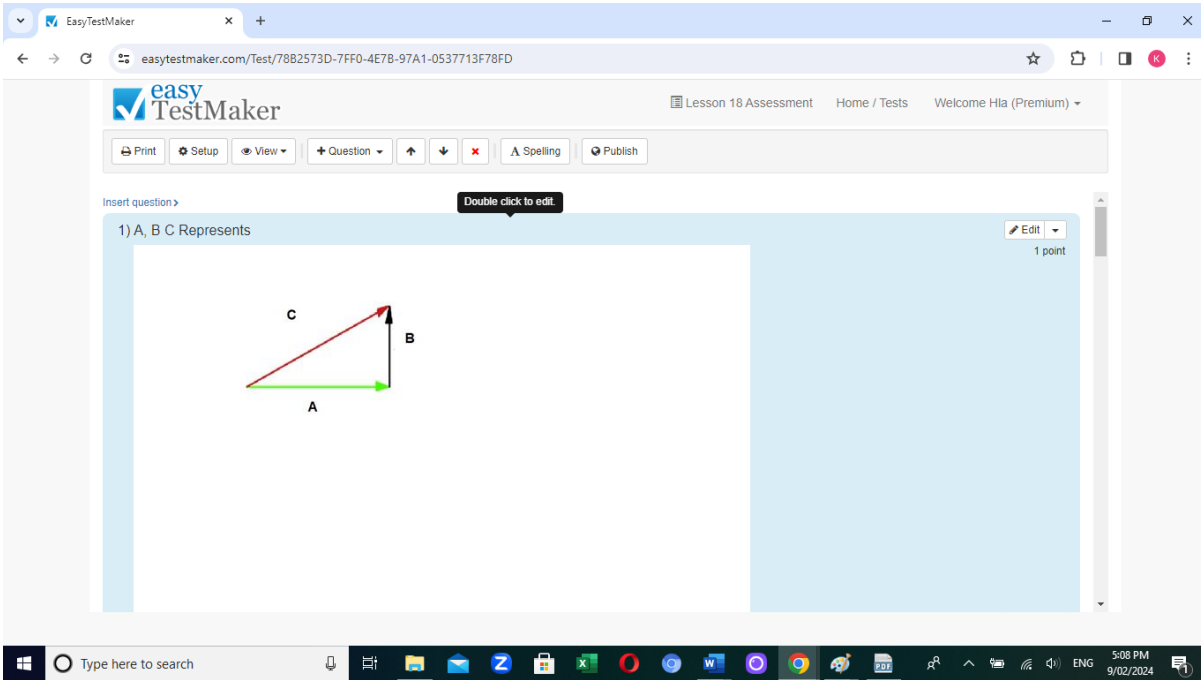
Electrical Trades College

ASP Level 2 Electrician

Test 18

Name	
Student Number	
Signature of student	
Name of Assessor	
Signature of assessor	
Date	
Result	
Comment by assessor	

- 1) A, B C Represents



a) Watts, Vars , VA

b) Watts, VA Vars ,

c) VA, Watts, Vars

2) For what reason bi-directional measurement and 4 Quadrant metering is used.

a) Electricity is often transferred between suppliers, and require that electricity be measured in two directions, with both lagging and leading power factor.

b) Electricity is only transferred from power station to consumer

3) In a polyphase circuit the watts in the 3 phases can be represented on a phasor diagram using the same ( ) axis as reference.

a) X

b) Y

4) In a polyphase circuit the VARs in each phase can be represented on the ( )axis,

a) X

b) Y

5) VA measurement needs

a) Arithmetic Addition involves the addition of the phasor value of VA in each of the phases.

b) Phasor Addition involves the addition of the phasor value of VA in each of the phases.

6) Demand is often referred to as the ( ) rate of energy transfer demanded by the consumer.

a) Normal

b) Minimum

c) Maximum

7) The size and capacity of transformer banks, sub-stations, transmission lines, switch gear, etc is determined by the ( ) imposed on these devices by the customer.

a) Current

b) Power

c) Voltage

d) Maximum demand of power

8) ( ) measurement is a common method for electricity suppliers to recover the increased costs.

a) VA Demand

b) Watt hr demand

c) VAR Demand

9) a) Motor Section
b) Braking Section
c) Gear Train Section are component of

a) Digital meter

b) Basic Induction meter

10) A hybrid meter is a device that uses two types of technologies;

a) Electrical and Electronic

b) Electrical and Mechanical

c) Electronic and Mechanical

11) SENSORS
MULTIPLIERS
NUMERICAL CONVERSION
REGISTERS are components of

a) Electronic Meter

b) Electrical Meter

12) A signal is formed with amplitude proportional to instantaneous current, and duration proportional to instantaneous volts.
Average value of the waveform is equal to instantaneous power is the method of

a) Frequency Division Multiplication

b) Time Division Multiplication

13) If a current conducting material is subject to a magnetic field, a voltage proportional to the product of the current and the magnetic field strength will develop across the material. It is

a) Fleming's Rules

b) Hall effect

c) Maxwell Principle

d) Faraday's rule

14) Another form of metering that incorporates both TDM and Hall Effect technology by; -conducting analogue multiplication of the line voltage and current to produce a voltage signal proportional to line power via the use of transistors.

a) Trans resistance

b) Transconductance

c) transformation Ratio

15) Digital sampling is the only technology that does not use an ( ) values of voltage and current.

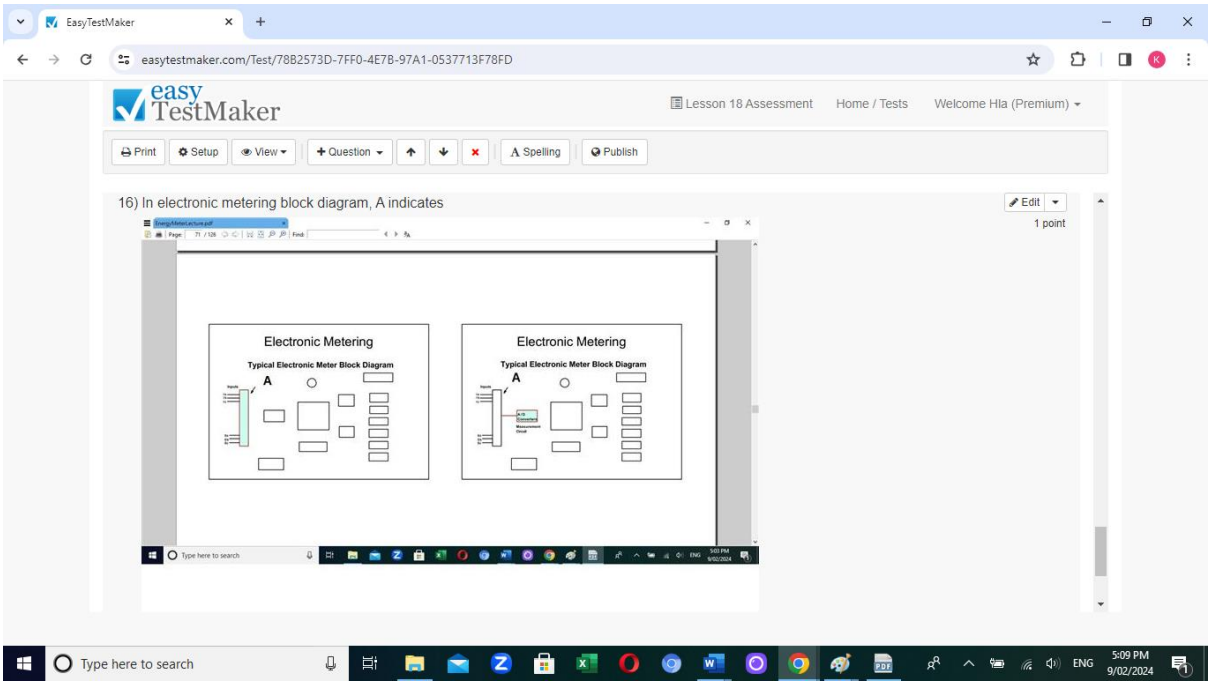
a) Real

b) Maximum

c) Average

d) Analogue

16) In electronic metering block diagram, A indicates



a) Power supply

b) Protective relay

c) Transformer multiplexing board