Licensed Electrician's Theory (LET) Assessment

Sample Paper July 2025

Candidate Surname	
Candidate Given Names	

Reference Material

- Electrical Safety (General) Regulations 2019
- AS/NZS 3000:2018 Electrical installations – Wiring Rules
- AS/NZS 3012:2019 Electrical installations – Construction and demolition sites
- AS/NZS 3008.1.1:2017 Electrical installations – Selection of cables
- AS/NZS 4836:2023 Safe working on or near low-voltage and extra-low voltage electrical installations and equipment.

Instructions

- Personal notepads and paper are not permitted.
- Permanent pens only must be used. Answers in pencil or erasable pens may not be marked.
- Do not remove any sheets from this assessment paper or the room.
- Papers with no name or signature will not be marked.
- Units must be shown to obtain full marks.

Working Time: 2 hours and 15 minutes (including reading time)
At the end of this time you will be asked to stop.

Results

Candidates need to obtain 75% or more to pass this assessment. If a mark of 74% or less is achieved, a minimum of 14 days is required before you are permitted to re attempt the assessment.

I, the above-named candidate confirm:

- I understand the instructions provided to me,
- I do not have any unauthorised materials in my possession, and
- I have not attempted the Licensed Electrician's Theory Assessment at any venue within the past 14 days.

Candidate			
	Print name	Signature	Date

Marking

Assessors to enter the candidate's results in the table below.

Question	1	2	3	4	5	6	7	8	9
Mark									
Question	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**
Mark									

Total

Final Percentage	Pass/Fail

I have conducted this assessment and certify that I am independent of the candidate.

Supervisor			
	Print name	Signature	Date
Assessor			
	Print name	Signature	Date
Reviewed by (If applicable)			
	Print name	Signature	Date

AS/NZS 3000:2018 Electrical installations – Wiring Rules

In the following **four** Wiring Rules questions, you are required to:

- Answer the question; and
- Write the Clause number and/or Table number in the space provided. The complete Clause and Sub-Clause number must be given e.g., 3.5.2(b)(i).

The correct answer to both parts must be given to obtain full marks.

Question 1. What is the minimum allowable cross-sectional area of a copper aerial wiring conductor?

.....

.....

Clause Number: ..... [2 + 2 = 4 marks]

Question 2. How shall lamps located near flammable materials be suitably shielded?

.....

.....

Clause Number: ..... [2 + 2 = 4 marks]

Question 3. What is the minimum required current carrying capacity of equipment wiring?

.....

.....

Clause Number: ..... [2 + 2 = 4 marks]

Question 4. Which wiring systems are not permitted to be taken through, or installed in refrigeration rooms?

.....

.....

Clause Number: ..... [2 + 2 = 4 marks]

AS/NZS 3012:2019 Electrical installations - Construction and demolition sites

In the following **two** AS/NZS 3012:2019 questions, you are required to:

- Answer the question; and
- Write the Clause number and/or Table number in the space provided. The complete Clause number and Sub-Clause number must be given e.g., 2.10.2 (f).

The correct answer to both parts must be given to obtain full marks.

Question 5. Where there is more than one switchboard on site, how should each appliance that is directly connected to a switchboard be marked?

.....

.....

Clause Number: ..... [2 + 2 = 4 marks]

Question 6. What actions shall be taken if a visual inspection of construction wiring, identifies damage or non-compliance to that part of the installation?

.....

.....

Clause Number: ..... [2 + 2 = 4 marks]

Electricity Safety (General) Regulations 2019

In the following Regulation question, you are required to:

- Answer the question; and
- Write the Regulation number in the space provided. The compete Regulation number and Sub-Regulation number must be given e.g., 401(e)(3).

The correct answer to both parts must be given to obtain full marks.

Question 7. What is the minimum insulation resistance for existing underground consumers mains when being reconnected to the electricity supply?

.....

.....

Regulation Number: ..... [2 + 2 = 4 marks]

Electric Shock Survival

Question 8.

A person has received an electric shock and whilst they are not touching the supply, they are still close to the supply, and potentially at risk. The person is unconscious. It is not practicable to isolate the power source.

(i) If safe to do so, what is the first thing that you should do with the casualty?

.....

.....

(ii) What type of material should be used to assist with the task stated above?

.....

.....

[2 + 2 = 4 marks]

Cable Selection

Question 9.

TWO groups of three-single-core X-90 insulated and sheathed copper cables, including earthing conductors, are connected in parallel to supply a three-phase distribution board with a total maximum demand of 500A. The cables are protected by a circuit breaker and each conductor is installed laid flat and touching, buried direct in the ground, at a depth of 0.6 meters.

(i) Neglecting voltage drop, what is the minimum cable size that can be installed for this circuit?

(ii) If the cables are spaced at 0.45 metres what is the minimum cable size which can be installed for this circuit?

All calculations including the final answer must be completed to a maximum of **two decimal places.**

Table details and units must be shown below to obtain full marks. Part (ii) is over the page.

Part (i)

	Answer		Answer		
Table 3 (_____?)		Item			
Table		Column			Answer
Derate/rating table		Column		Factor	
Derate/rating table		Column		Factor	

Calculation:

Part (i) Answer:	

Question 9 Part (ii)

	Answer		Answer		Answer
Derate/rating table		Column		Factor	

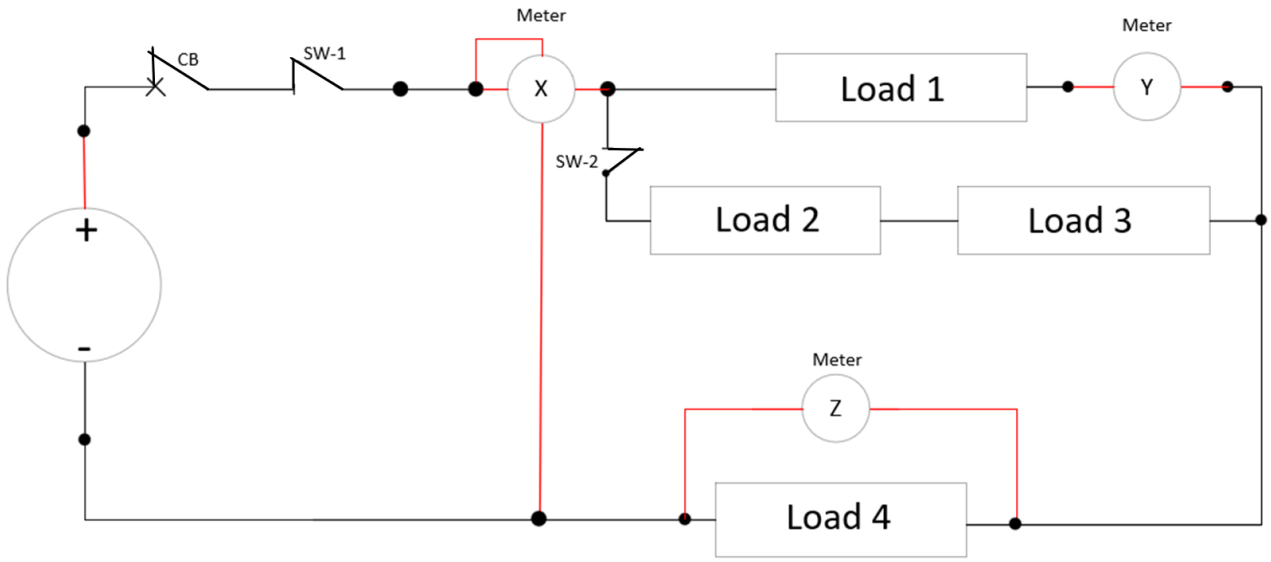
Calculation:

Part (ii) Answer:	

[1 + 2 + 1 + 1 + 2 + 1 = 8 marks]

Ohms Law

Question 10.



For the circuit shown above, you have taken some measurements with **switch one and two closed** and recorded the following:

- Supply Voltage – 250V
- Current through load 4 – 2A
- Voltage across load 1 – 150V
- Resistance of load 2 – 100Ω
- Resistance of load 3 - 50Ω

Using these measurements, calculate the meter readings with **switch 1 and 2 closed**:

(i) meter X

(ii) meter Y

Using these measurements, calculate the reading for the following when **switch 2 is open**:

(iii) meter Y

All calculations including the final answer must be completed to a maximum of **two decimal places.**

Calculation:

(i) Meter X:		(ii) Meter Y:		(iii) Meter Y:	

[2 + 2 + 2 = 6 marks]

Maximum Demand

Question 11.

Calculate the Maximum Demand of the consumer's mains of a single phase 230V single domestic residence.

The load connected to the switchboard is:

- 1 - 5.2kW storage water heater
- 1 - 6kW Oven
- 46 - 10W LED lighting points
- 3 - 15A socket outlets
- 18 - 10A double socket outlets

All calculations including the final answer must be completed to a maximum of **two decimal places.**

All relevant table details, including table, column and load groups used.
Calculations and units must be shown to obtain full marks.

Table		**Column**	
Equipment	**Load Group**	**Calculation**	**Maximum Demand**
		Total Maximum Demand:	

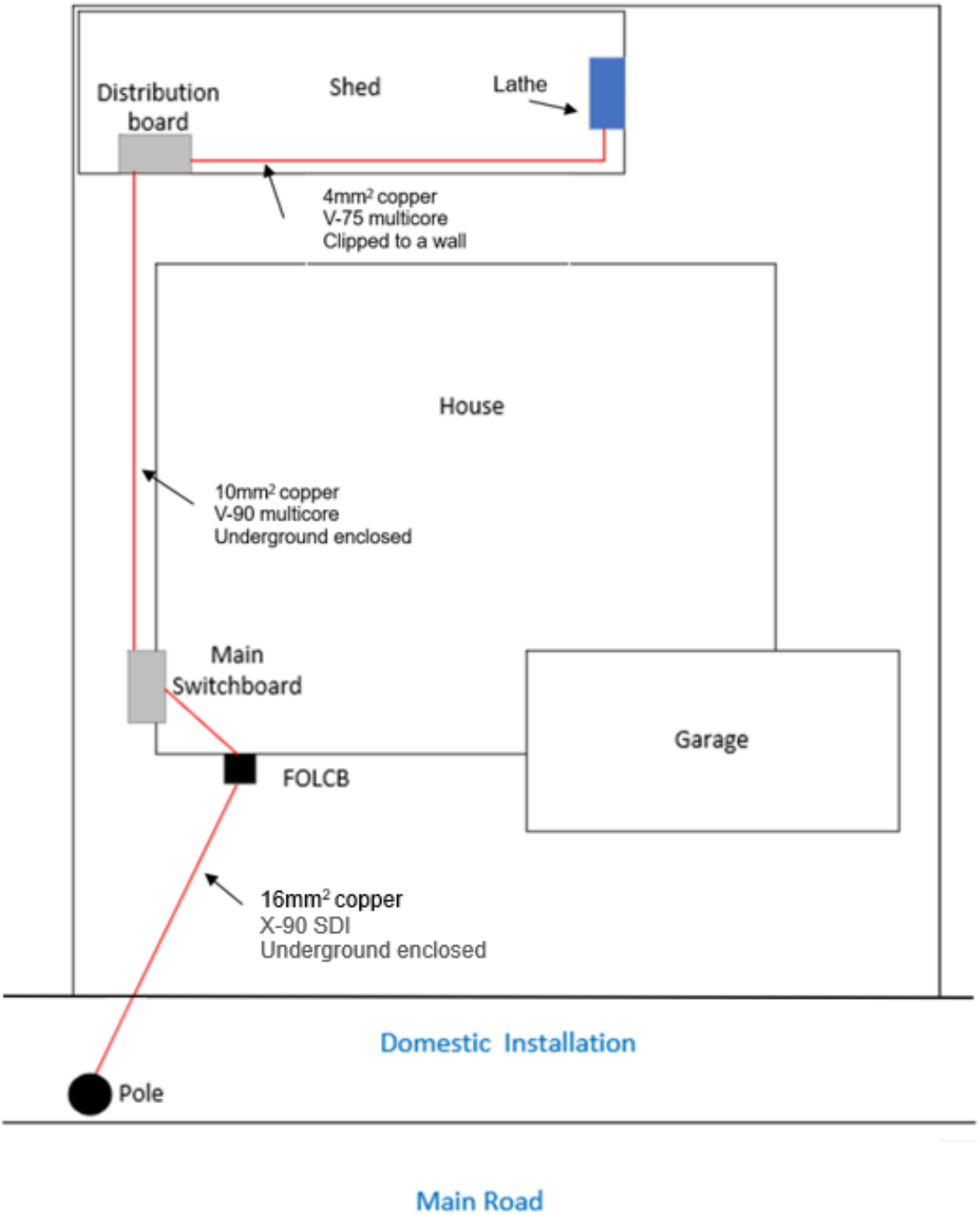
[1+ 1 + 1 + 1 + 1 + 2 + 1 = 8 marks]

Voltage Drop

Question 12.

In a 400/230V, three-phase domestic installation, a three-phase 14A Lathe is supplied from a sub-circuit originating in the Shed. The Lathe is installed 26 meters away from the distribution board.

A site plan of the three-phase domestic installation is shown below, all the circuits are operating under normal conditions.



Client: Billy William	**Location:** 17 Bolt St, Coburg	**Cable**	**Distance**	**Maximum Demand**	**Voltage**
Drawing title: Site plan	Main Switchboard	Consumer Mains	22m	45A	400/230V
Date: 12 June 2025	Shed Distribution board	Sub Mains	30m	23A	400/230V

Using the information provided above, calculate the total voltage drop from the point of supply to the lathe terminals.

All calculations including the final answer must be completed to a maximum of **two decimal places.**

All relevant table details, calculations and units must be shown to obtain full marks.

Cable	Table	Column	Vc	Calculation	Vd
Consumer's Mains					
Sub-Mains					
Final Sub-Circuit					

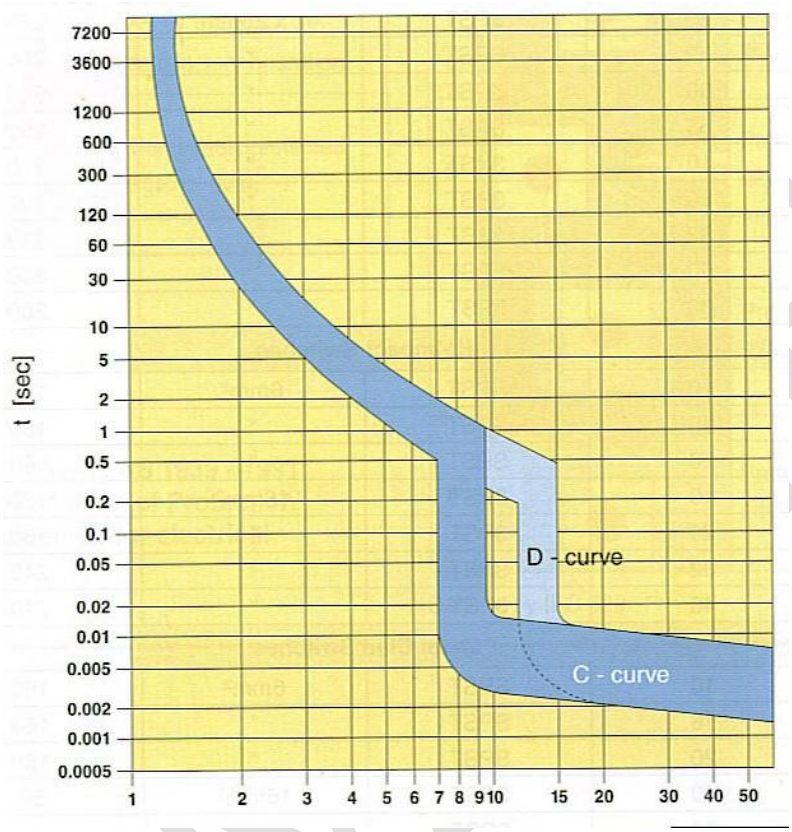
Answer Total Voltage Drop:	

[1+1+1+1+1+1+1+1+1+1 = 10 marks]

Overload and Short Circuit Calculations

Question 13.

What are the minimum and maximum tripping times for a 20A Type D miniature over-current circuit breaker which is subjected to an over-current of 60A?



Overcurrent divided by MCB Current Rating

Overcurrent divided by MCB current rating:			
Minimum Time:		**Maximum Time:**	

[1 + 1 + 1 = 3 marks]

Overload and Short Circuit Calculations

Question 14.

The main switchboard of a 400/230V industrial installation is directly supplied from a 550KVA transformer which has a prospective fault current of 16,000A per phase.

Sub-Mains supply a distribution board from the main switchboard.

The following information is known:

- Impedance of the Consumer's Mains = 0.00623Ω
- Impedance of the Sub-Mains cables = 0.01920Ω

Determine the prospective fault current at:

(i) The main switchboard.

(ii) The distribution board.

Work impedances to 5 decimal places.

All calculations must be shown to obtain full marks.

Calculation:

Transformer Impedance:	
Main Switchboard:	
Distribution Board:	

[(2+1) + (2+1) + (2+1) = 9 marks]

Residual Current Devices

Question 15.

A 30mA Residual Current Circuit Breaker with Overcurrent protection (RCBO) is to be installed to protect three (3) circuits of 10A socket outlets with a total maximum demand of 32A.

Each circuit is protected by overcurrent only device rated at a 16A

What is the minimum current rated RCBO device you would install for this circuit

State the minimum current rating of the Residual Current Device.

Answer	

[3 marks]

Motors and Starters

Question 16.

CIRCLE the letter in front of the statement you consider to be the most correct.

What is an advantage of installing a variable speed drive to control a squirrel cage induction motor?

a) Speed can be controlled.
b) Lower starting torque.
c) No maintenance costs.
d) Increased starting torque.

[2 marks]

AS/NZS 4836:2023 Safe working on or near low-voltage and extra-low voltage electrical installations and equipment

Question 17.

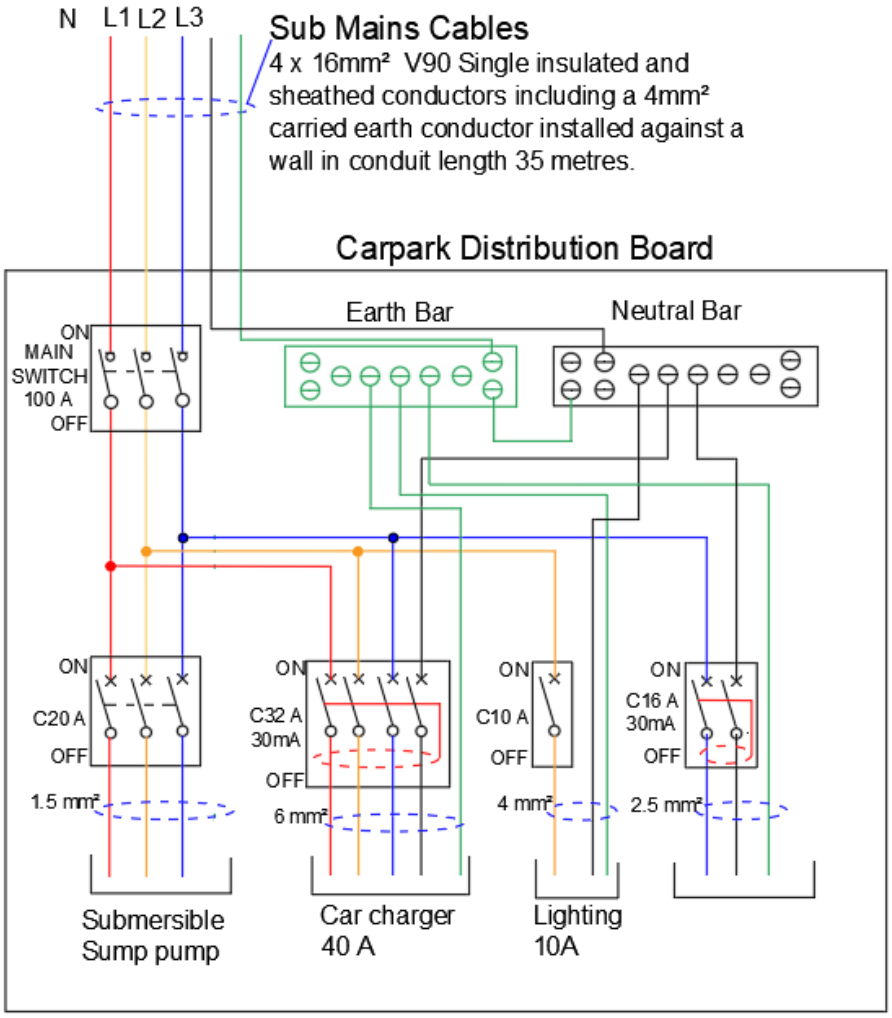
This question relates to AS/NZS 4836:2023.

State one (1) of the three (3) components that shall be positively identified in the process of isolation of electrical equipment.

Clause Number: ---------- [2 + 2 = 4 marks]

Installation Defects - Non-Domestic

Question 18.



The drawing above shows a distribution board for the public light and power in a two-level carpark of a commercial and residential multiple occupancy.

The submains length and installation conditions are within Volt drop limits calculated by the designer. The MEN is located at the main switchboard and the submains are protected by a 100A Circuit Breaker at the main Switch board.

The distribution board is located in a storeroom in the car park that provides 800mm clearance between the face of the switchboard and the opposite wall. Access is always blocked by other equipment kept in the storeroom.

The stormwater submersible pump has a full load current of 16.7A. It is not a safety service, however, is a critical piece of equipment to ensure the car park does not flood when raining.

All screws in bars or links are 70% of the tunnel diameter.

Complete the table below.

Use the diagram and information supplied on the previous page.

List **FIVE different defects** together with the contravened Wiring Rules Clause/Table number in the table provided below.

Note: Only the first five defects will be considered.

DEFECT DETAILS	WIRING RULE CLAUSE/TABLE No.

[5 x (2 + 1) = 15 marks]