

Licensed Electrician's Practical (LEP) Assessment Sample Paper Marking Guide (2022)



Question 1 - Meter Panel and Switchboard Wiring

The installation is a 3 Phase domestic premises situated at 12 Edmond Road, Bryansville. All final sub-circuits must be RCD protected.

The following equipment is to be installed at the **main switchboard**:

- 1 - 3Φ 21A storage water heater, 400V control, wired to an external enclosure
- 1 - 1Φ 3.6kW dryer
- 26 - 230V 12W LED luminaires, installed over two circuits. Both circuits are to be installed on the same phase.
- 12 - double socket outlets installed over two circuits. Both circuits are to be installed on the same phase.
- 1 - 230V 4.2kW electric vehicle charger

The following equipment is to be installed from the **distribution board** and controlled by an isolator:

- 2 - 230V 15W LED lights installed on one circuit
- 1 - 230V 15A socket outlet
- 4 - 230V 10A double socket outlets installed on one circuit
- 1 - 230V 5A instantaneous water heater

Table C1 Column 2

Circuits	Load Group	Calculations	MD		
			Red	White	Blue
1 - 3Φ 21A storage water heater	F	Full connect load 21A	21	21	21
1 - 1Φ 3.6kW dryer	C	50% of the connected load $3.6\text{kW}/230\text{V} = 15.65\text{A} \times 0.5 = 7.83\text{A}$		7.83	
26 - 230V 12W LED luminaires all on the same phase	A (i)	3A for 1 - 20 points, plus 2A for each additional points $3\text{A} + 2\text{A} = 5\text{A}$	5		
12 - 230V 10A double socket outlets	B (i)	10A for 1 - 20 points, plus 5A for each additional points $12 \times 2 = 24 \text{ points } 10\text{A} + 5\text{A} = 15\text{A}$		15	
1 - 230V 4.2kW electric vehicle charger	J (iv)	Full connect load $4.2\text{kW}/230\text{V} = 18.26\text{A}$	18.26		
Equipment 1Φ Distribution Board					
2 - 230V 15W LED lights	A (i)	3A for 1 - 20 points, plus 2A for each additional points 3A			3

1 - 230V 15A Socket outlet	B (ii)	10A			10
4 - 230V 10A Double socket outlets	B (i)	10A for 1 - 20 points, plus 5A for each additional points 10A			10
1 – 230V 5A instantaneous water heater	E	33.3% of the connected load 5 x .333 = 1.67A			1.67
Distribution Board MD					24.67A
Total Installation MD			44.26A	43.83A	45.67A

AS/NZS 3008.1.1

Consumers Mains	Table 7	Column 15 (O/H) or 24 (U/G)
Sub-main	Table 4	Column 15
Three phase load	Table 7	Column 15
Single phase loads	Table 10	Column 15

Maximum Demand of the Installation	Current Rating of the Main Switch	Size of the Consumers Mains Cable		Size of the Main Earth Conductor	
		O/head	U/G	O/head	U/G
45.67A	50A	16mm ²	10mm ²	6mm ²	4mm ²

Maximum Demand of the Distribution Board	Current Rating of the Distribution Board Sub-main Circuit Protection	Size of the Sub-main Cable
24.67A	25A/32A	4mm ²

Location	Description	Circuit Loading (T.C9)	Circuit Breaker Rating	Cable Size	AS/NZS 3008
Main Board	3Φ 21A storage water heater	21A	25A	4mm ²	T7 C15
Main Board	1Φ 3.6kW dryer	15.65A	16A/20A	2.5mm ²	T10 C15
Main Board	26 - 230V 12W LED luminaires	1.36A	10A	1.5mm ²	T10 C15
Main Board	6 - 230V 10A double socket outlets	12A	16A/20A	2.5mm ²	T10 C15
Main Board	6 - 230V 10A double socket outlets	12A	16A/20A	2.5mm ²	T10 C15
Main Board	1 Φ 4.2kW electric vehicle charger	18.26A	20A	2.5mm ²	T10 C15
Distribution Board	2 - 230V 15W LED luminaires	0.13A	6/10A	1.5mm ²	T10 C15
Distribution Board	1 - 230V 15A single socket outlet	15A	16A/20A	2.5mm ²	T10 C15
Distribution Board	4 - 230V 10A double socket outlets	8A	16A/20A	2.5mm ²	T10 C15

Distribution Board	1 – 230V 5A instantaneous water heater	5A	6/10A	1.5mm ²	T10 C15
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Question 1 = 35 marks

Question 2.8 – Testing of Operation of RCDs

Answer: Active and Neutral

Wiring Rules Clause Number: 2.6.2.2.2

1 mark

Question 3.2 - MEN System

1. b) Decrease
2. b) False
3. a) Increase
4. a) True

(2 + 2 + 2 + 2 = 8 marks)

SAMPLE