Licensed Electrician's Practical (LEP) Assessment Sample Paper Marking Guide 2024

Question 1 - Meter Panel and Switchboard Wiring

The installation is a 3 Phase domestic premises situated at 23 Road Street, Norwood. All final sub-circuits must be RCD protected.

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

- 1 - 3Φ 20A Reverse Cycle Air Conditioning unit
- 1 - 1Φ 9kW Range
- 14 - 200W Outdoor tennis court lights
- 22 - 230V 15W LED downlights
- 20 - 230V 10A Double socket outlets. All circuits are to be installed on the same phase, across two circuits.

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

- 2 - 230V 15A Socket outlets installed on the same circuit
- 8 - 230V 10W LED downlights
- 1 - 230V 3kW Electric vehicle charger

Table C2 Column 3

Circuits	Load Group	Calculations	MD		
			Red	White	Blue
1 - 3Φ 20 Air Conditioner	(d)	75% connect load **20 x 0.75 = 15A**	15A	15A	15A
1 - 1Φ 9kW Range	(c)	50% connect load **(9000/230) x 0.5 = 19.57A**	19.57A		
14 – 200W Outdoor tennis court lights	(a) (ii)	75% connected load **(2800/230) x 0.75 = 9.13A**		9.13A	
22 - 230V 15W LED downlights	(a) (i)	3A for 1-20 points + 2A for each additional 20 **3A + 2A = 5A**	5A		
20 - 230V 10A Double socket outlets	(b) (i)	10A for 1-20 points + 5A for each additional 20 **10A + 5A = 15A**		15A	
Equipment 1Φ Distribution Board					
2 - 230V 15A Socket outlets	(b) (ii)	10A **10A**			10A

8 - 230V 10W LED downlights	(a) (i)	3A for 1-20 points + 2A for each additional 20 **3A**			3A
1 – 3kW 230V Electric vehicle charger	(j) (iv)	Full connected load **3000/230 = 13.04**			13.04A
		Distribution Board MD			26.04A
		Total Installation MD	39.57A	39.13A	41.04A

AS/NZS 3008.1.1

Consumer's 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 Consumer's Mains Cable		Size of the Main Earth Conductor	
		O/head	U/G	O/head	U/G
41.04A	50A	16mm²	10mm²	6mm²	4mm²

Maximum Demand of the Distribution Board	Current Rating of the Distribution Board Sub-main Circuit Protection	Size of the Sub-main Cable
26.04A	32A	4mm²

Location	Description	Circuit Loading (Table C9)	Circuit Breaker Rating	Cable Size	AS/NZS 3008
Main Board	3Φ 20A Reverse Cycle AC	20A	20A	2.5mm²	T7 C15
Main Board	1Φ 9kW range.	25A	25A	4mm²	T10 C15
Main Board	14 - 200W outdoor tennis court lights.	12.17A	16A	2.5mm²	T10 C15
Main Board	22 - 230V 15W LED downlights.	1.43A	10A	1.5mm²	T10 C15
Main Board	10 - 230V 10A Double socket outlets.	20A	20A	2.5mm²	T10 C15
Main Board	10 - 230V 10A Double socket outlets.	20A	20A	2.5mm²	T10 C15
Distribution Board	2 - 230V 15A socket outlets.	20A	25A	4mm²	T10 C15
Distribution Board	8 - 230V 10W LED downlights.	4A	10A	2.5mm²	T10 C15
Distribution Board	1 – 230V 3kW EV charger.	13.04A	16A	1.5mm²	T10 C15

Question 1 = 35 marks

Question 2.8 – Testing of Operation of RCDs

Answer: no

Wiring Rules Clause Number: 2.6.3.2.6 (a)

1 mark

Question 3.2 - MEN System

1. (c) An MEN link and earth electrode must be installed at the distribution board.
2. (a) Series
3. (b) A high impedance neutral on the consumers mains
4. (c) Connected loads switching in and out causing voltage drops around the installation to fluctuate.

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