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

Question 1 - Meter Panel and Switchboard Wiring

The installation is a 3 Phase domestic premises situated at 44 Street Road, Burtwood. All final sub-circuits must be RCD protected.

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

- 1 – 3Φ 17kW Storage hot water service
- 1 – 1Φ 8kW Oven
- 2 – 1Φ 15A Socket Outlets, installed over two circuits on the same phase
- 1 – 230V 2.4kW Outdoor radiant heater

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

- 6 – 230V 150W Outdoor garden lights installed on a separate circuit
- 18 – 230V 12W LED downlights installed on a single circuit
- 8 – 1Φ 10A Double socket outlets installed on a single circuit
- 1 – 1Φ 2.5kW Instantaneous water heater

Table C1 Column 2

Circuits	Load Group	Calculations	MD		
			Red	White	Blue
1 – 3Φ 17kW Storage HWS	(f)	Full-load current **17000/(400/√3) = 24.54A**	24.54A	24.54A	24.54A
1 – 1Φ 8kW Oven	(c)	50% connected load **(8000/230) x 0.5 = 17.39A**	17.39A		
2 – 1Φ 15A Socket Outlets	(b) (ii)	10A		10A	
1 – 230V 2.4kW Outdoor Radiant Heater	(d)	75% connected load **2400/230 x .75 = 7.83A**		7.83A	
Equipment 1Φ Distribution Board					
Circuits	**Load Group**	**Calculations**	**MD**		
			Red	**White**	**Blue**
6 – 230V 150W Outdoor Garden Lights + 18 – 230V 12W LED Downlights	(a) (i)	3A for 1-20 points + 2A for each additional 20 **3 + 2 = 5A**			5A

8 – 1Φ 10A Double Socket Outlets	(b) (i)	10A for 1-20 points + 5A for each additional 20 **10A**			10A
1 – 1Φ 2.5kW Instantaneous Water Heater	(e)	33.3% connected load **2500/230 = 10.87**			3.62A
		Distribution Board MD			18.62A
		Total Installation MD	41.93A	42.37A	43.16A

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
43.16A	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
18.62A	20A	2.5mm²

Location	Description	Circuit Loading (Table C9)	Circuit Breaker Rating	Cable Size	AS/NZS 3008
Main Board	3Φ 17kW HWS	24.54A	25A	4mm²	T7 C15
Main Board	1Φ 8kW oven	20A TC5	20A	2.5mm²	T10 C15
Main Board	1 - 1Φ 15A socket outlet	15A	16/20A	2.5mm²	T10 C15
Main Board	1 - 1Φ 15A socket outlet	15A	16/20A	2.5mm²	T10 C15
Main Board	1 - 230V 2.4kW radiant heater	10.43A	16/20A	2.5mm²	T10 C15
Distribution Board	6 - 230V 150W outdoor garden lights	3.91/3A	10A	1.5mm²	T10 C15
Distribution Board	18 - 230V 12W LED Downlights	0.94/9A	10A	1.5mm²	T10 C15
Distribution Board	8 - 1Φ 10A double socket outlets.	16A	16/20A	2.5mm²	T10 C15
Distribution Board	1 – 1Φ 2.5kW Instantaneous water heater	10.87A	16A	2.5mm²	T10 C15

Question 1 = 35 marks

Question 2.8 – Testing of Operation of RCDs

Answer: no

Wiring Rules Clause Number: 2.6.2.4 (b) (i)

1 mark

Question 3.2 - MEN System

1. (c) An MEN link and earth electrode must NOT be installed at the distribution board.
2. (d) The installation requires active and neutral conductors to be installed.
3. (b) That a touch voltage is present between accessible earthed conductive parts.
4. (c) The integrity of the consumers mains neutral has diminished.

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