General Sir John Kotelawala Defense University
Faculty of Computing
Department of Computer Engineering

2.4

BSc (Hons) in Computer Engineering
Laboratory Practical
Fundamentals of Electrical Engineering

Experiment #4 Domestic Electrical Wiring

Name:
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Index No
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Intake
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Date
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Instructor Name and Signature:
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Comments ……
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Grade

Aim:

- Understand basic Electrical wiring fundamentals.
- Familiar with the devices used in wiring and understand how to choose them.
- Importance of adhering to IEE Regulations

Apparatus:

Household wiring arrangement board
Incandescent lamp
Compact fluorescent lamp (CFL)
lux meter
Screw Driver
Additional socket outlets

Theory and Diagram:

Identify the following components and study the basic places of use.

1. Two pole MCB (Miniature Circuit Breaker)
2. Two pole RCCB (Residual Current Circuit Breaker)
3. Single pole MCB

Procedure:

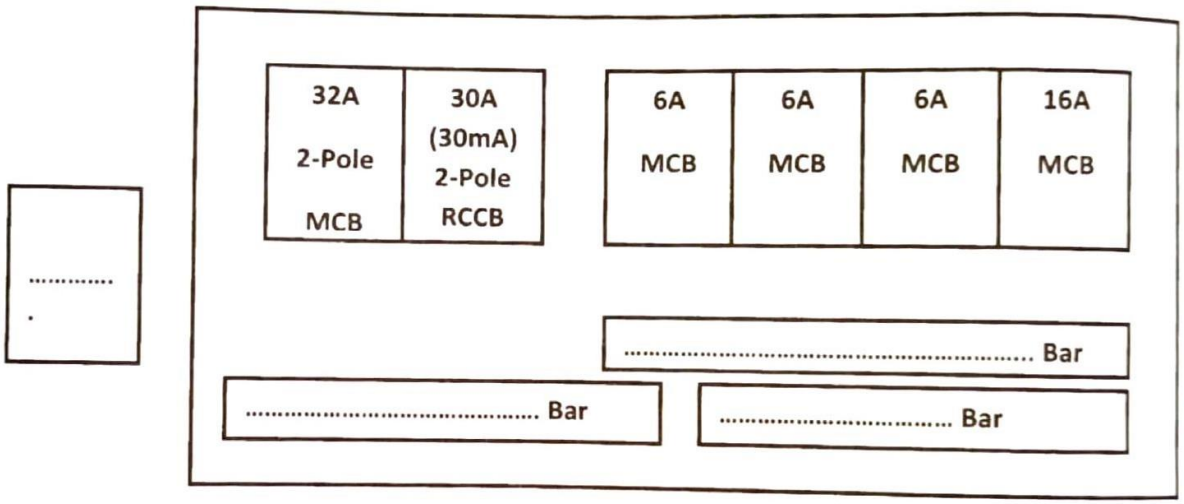
Be familiar with the given circuit and trace the wiring.

Draw the circuit diagram in your note books.

Study how the wiring has been developed with comparison to the traditional system.

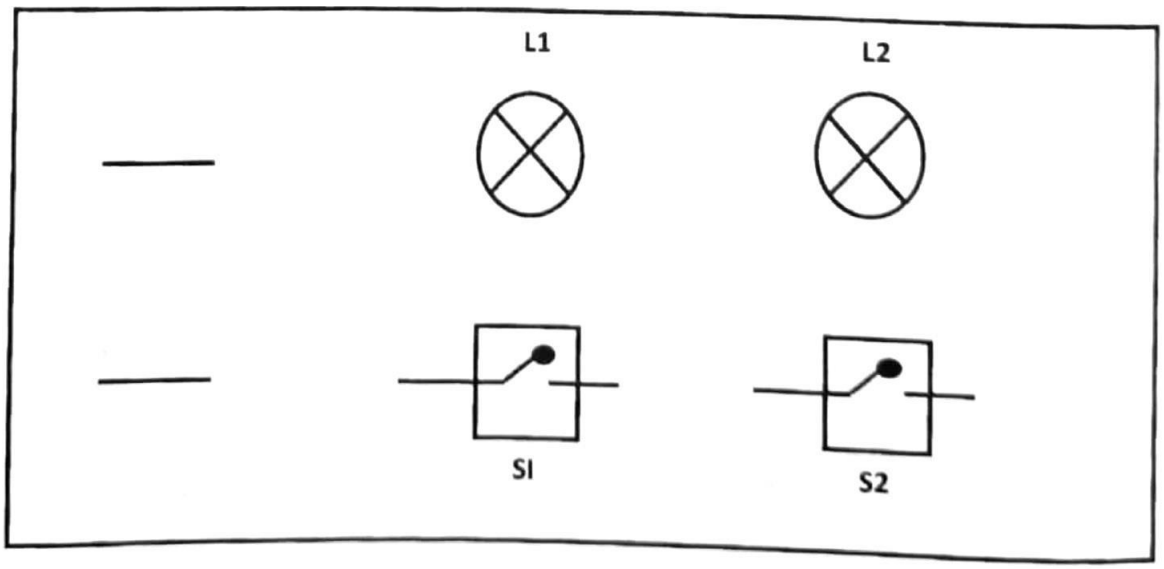
Observe the given household wiring arrangement board. Trace the wiring of the Consumer Unit /Distribution Board.

1. The number of sub circuits in the wiring board is
2. Complete the wiring diagram of the Consumer Unit.



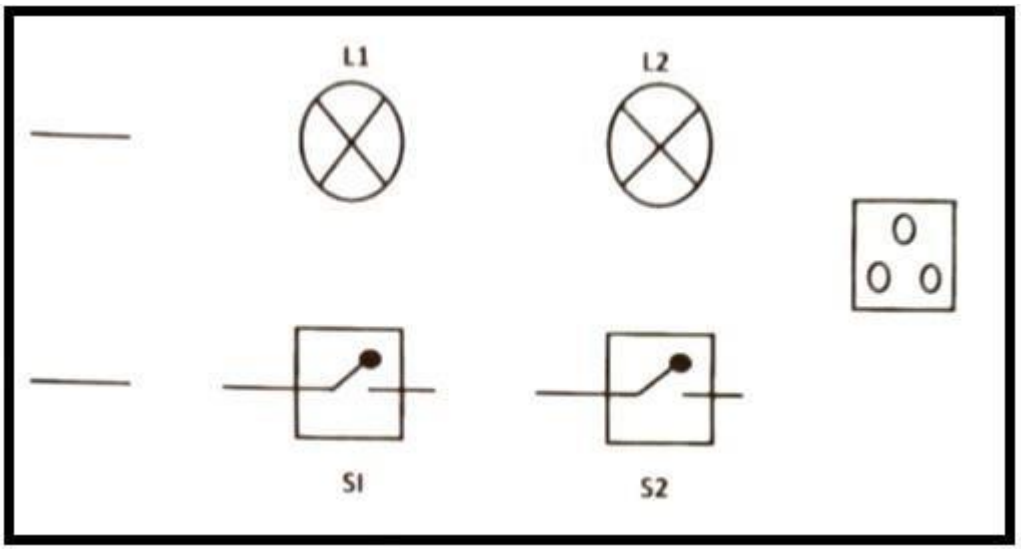
Consumer Unit or Distribution Board

3. a) Complete the wiring diagram of Sub Circuit 1.



Sub Circuit 1

b) Modify the above circuit diagram for a 5A Plug socket outlet and a lamp to be operated by Sub Circuit 2



Sub Circuit 2

4. Are the lamps connected in series or parallel? Explain why it is so.

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5. Are the two circuits of lamps connected in series or parallel? Explain why it is so.

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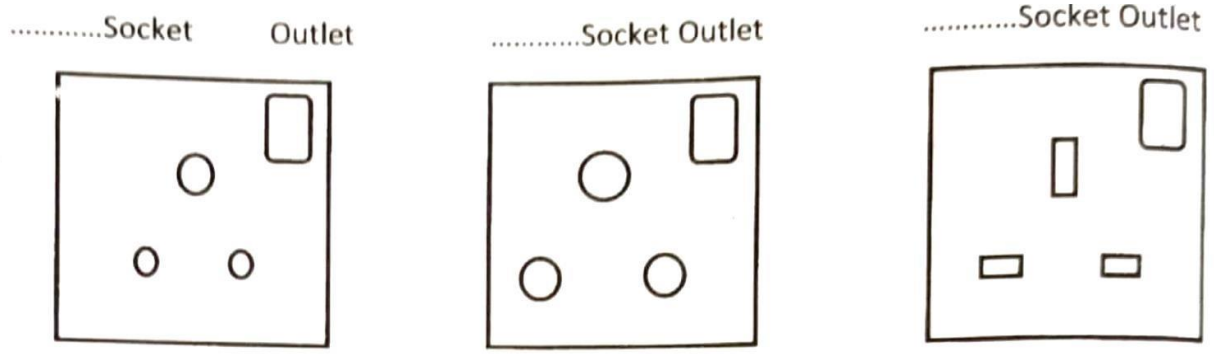
6. MCBs are used to protect …… from damage caused by ……
The rated currents of the given MCBs are …… and ……..

7. RCCB is used to protect …….. From ……..
The tripping current of the given RCCB is .....The current carrying capacity of RCCB is ……

8. Note down the difference of given Socket Outlets of different current ratings.



9. Remove the wires of the socket outlets and check whether the three wires are in the correct or wrong places. Give reasons for your answer.

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10. Find the power consumption of the CFL and incandescent lamp.

The meter constant of the energy meter was observed to be …… rev/ kWh. The time taken for ..... revolutions of the disc of the energy meter was measured to be..... seconds for the incandescent lamp.

The power consumption of incandescent lamp: ……

The time taken for.....revolutions of the disc of the energy meter was measured to be ……. Seconds for the CFL.

The power consumption of CFL: …….

11. Measure the light output of incandescent lamp and the CFL using the lux meter at a distance of 0.5m.

Light output of …… Watt incandescent lamp is .....Lux.

Light output of ……. Watt CFL is ..... Lux.

Which one of these two lamps is the best considering Luminous Efficiency (Lm/W) (Sometimes known as Luminous Efficacy) Lumens per Watt,

i) Incandescent Lamp ……..
ii) CFL ……..

Which one of these two lamps is cooler than the other? Explain why?

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