ELECTRICAL WORKSHOP PART (II)

- G033 – ELECTRICAL EQUIPMENTS
- G063 – SAFETY PROTECTION
- G107 – INSTALLATION REQUIREMENTS

LAMPS

- INCANDESCENT LAMPS → CURRENT FLOW → I^2R LOSS → HEAT → LIGHT (240V)
- ELV LAMP (EXTRA LOW VOLTAGE LAMPS) (VOLTAGE LESS THAN 50V)
- DISCHARGE LAMPS. → CURRENT FLOW → INTERACTION WITH GAS → LIGHT

DUE TO A LOT OF POWER LOSSES IN THE LIGHT, INCANDESCENT LAMPS ARE LESS AND LESS BEING USED. DISCHARGE LAMPS ARE INCREASINGLY BEING USED.

- DISCHARGE LAMPS ARE MORE ECONOMICAL.
- DISCHARE LAMPS PROVIDE MORE ILLUMINATION.
- ILLUMINATION LEVEL ON PARTICULAR SURFACE MUST BE MEASURED WITH LIGHT METER. IT MUST HAVE APPROPRIATE RECOMMENDED VALUE.

(240V)

50V)

...PS ARE

...BEING USED.

WITH

...E.

TO ACHIUE SUCH RECOMMENDED UALUE, APPROPRIATE NUMBERS of LIGHTS & LIGHT POWER MUST BE ARRANGED

ELU LAMPS

TUNGSTEN LIGHT WITH OWN REFLECTORS

LIGHT EMITS AT TEMPERATURE 3000'K

GASEOUS LAMP

DISCHARE LIGHTING IS PRODUCED BY GAS OR UAPOUR DISCHARGE TUBE

TABLE 23, CABLE SIZE FOR LIGHT LEVEL

* CABLE SIZE IS SMALL, RUN THE CABLE FOR A SHORT DISTANCE

BASIC OPERATION OF DISCHARGE LAMP

WHEN THE VOLTAGE IS APPLIED TO STARTING ELECTRODE, THE POSITIVE IONS FLOW FROM STARTING ELECTRODE TO MAIN ELECTRODE.

THOSE IONS INTERACT WITH GAS MOLECULES AND LIGHT IS EMITTED.

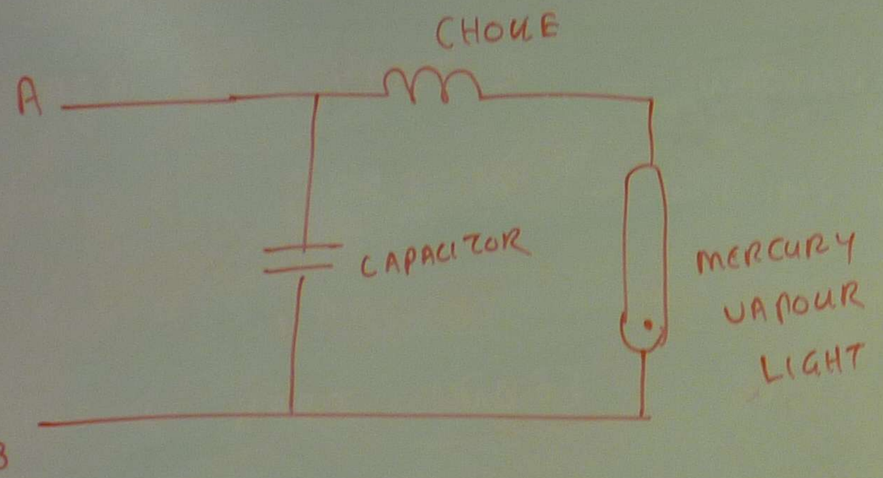
A

B

ELEC...

MERC...

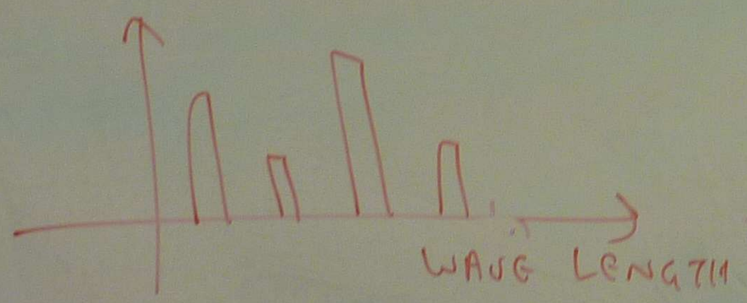
LIG...



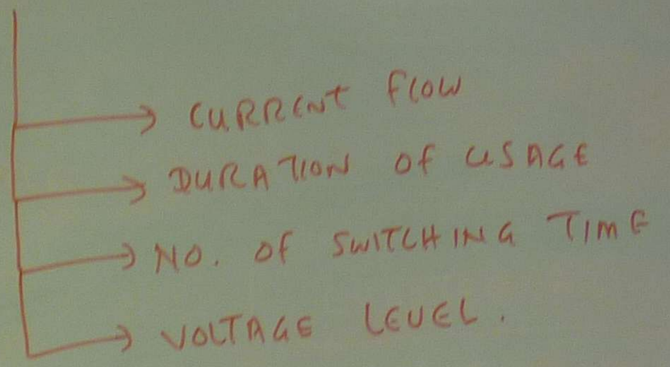
ELECTRICAL SUPPLY SYSTEM FOR MERCURY VAPOUR LIGHT.

LIGHT ⟶ ELECTRO MAGNETIC WAVE.

WHEN ELECTRO MAGNETIC WAVE ARE MOVING, IT RADIATES THE ENERGY



LIFE of THE LAMP



USAGE of DISCHARGE LAMP

OUT DOOR
- ROAD WAY LIGHTING
- FLOOD LIGHTING
- SECURITY LIGHTING.

INDUSTRY — HIGH BAY TYPE LUMINAIRES.

TUTORIAL QUESTIONS

1. EXPLAIN THE OPERATION PRINCIPLE OF
   (a) INCANDESCENT LAMP
   (b) DISCHARGE LAMP

2. HOW WILL YOU DESIGN THE LIGHTING SYSTEM FOR THE BUILDING?

3. IF THE CABLE SIZE IS SMALLER, IT SHOULD BE RUN
   (a) LONGER (b) SHORTER DISTANCE

4. SKETCH THE ELECTRICAL SUPPLY CIRCUIT FOR MERCURY VAPOUR LIGHT

5. WHAT ARE THE FACTORS AFFECTING THE USEFUL LIFE of A LAMP

6. DESCRIBE THE USAGE OF DISCHARGE LAMP.

RES.

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THE OPERATION PRINCIPLE OF
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RIBE THE USAGE OF DISCHARGE LAMP.

Q2

- DETERMINE THE TYPE of APPLICATION
- THE SELECT THE APPROPRIATE
  ILLUMINATION LEVEL
- EXAMINE THE AVAILABLE LIGHTING
  FIXTURE, POWER CONSUMPTION
  & ILLUMINATION
- CALCULATE THE NO. OF LIGHTS
- ARRAGE THE LIGHT
- WIRING.