

UEE NEEK 025 SOLVE BASIC PROBLEMS IN

PHOTO VOLTIC ENERGY APPARATUS

4 POINTS

4291K - INTRODUCTION TO RENEWABLE ENERGY
TECHNOLOGIES

- EQUIVALENT CIRCUIT FOR PV CELL
- CHARACTERISTICS OF SUN LIGHT
- SEMI CONDUCTOR PROPERTIES
- STANDARD SILICON SOLAR CELL TECHNOLOGY
- SOLAR RADIATION AND SHADING ASSESSMENT
- INTERCONNECTION & FABRICATION OF SOLAR MODULES
- P.V CONFIGURATION + APPLICATION
- P.V WATER PUMPING SYSTEM
- SOLAR SYSTEM DESIGN
- SOLAR CALCULATION
- STAND ALONE P.V SYSTEM
- P.V INSTALLATION

+ WIND

+ HYDROPOWER

GE

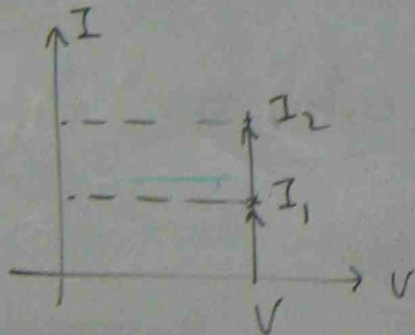
WWW. Power Learning 1. zoomshare.com

4 POINTS

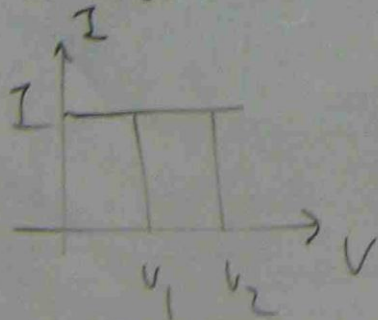
Two Tests — T_1 - wk 9
 T_2 - wk 17

① EQUIVALENT CIRCUIT FOR P.V CELL

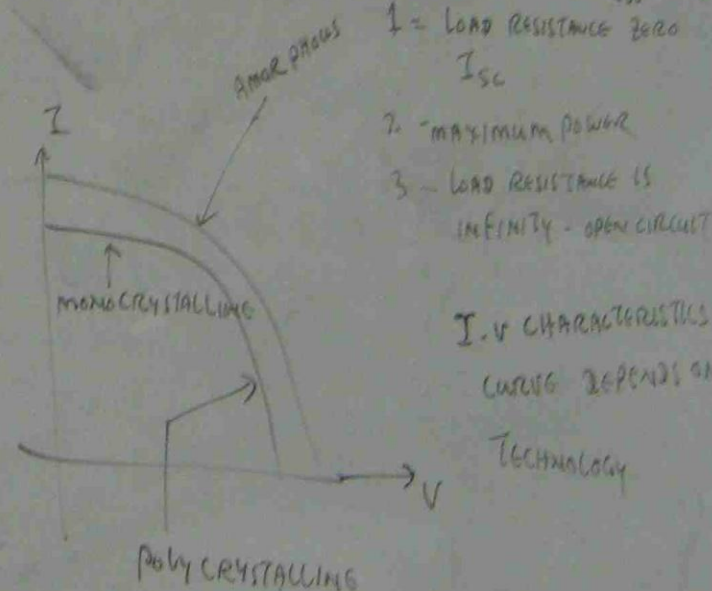
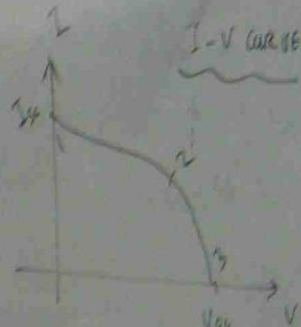
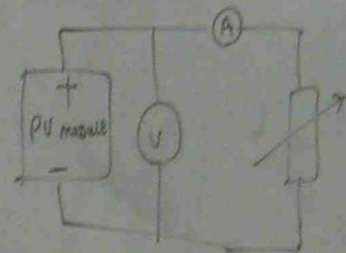
GENERAL ELECTRICAL EQUIPMENTS → CONSTANT VOLTAGE SOURCE



SOLAR CELL - CONSTANT CURRENT SOURCE



TESTING SOLAR CELL



- 1 - LOAD RESISTANCE ZERO I_{sc}
- 2 - MAXIMUM POWER
- 3 - LOAD RESISTANCE IS INFINITY - OPEN CIRCUIT

SOLAR RADIATION

IRRADIATION & IRRADIANCE

SOLAR IRRADIANCE (G)

THE RATE AT WHICH SOLAR ENERGY STRIKES
THE SURFACE OF EARTH (POWER PER UNIT AREA)

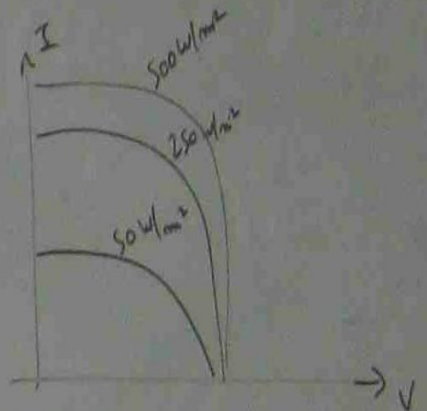
ON CLEAR DAY, SOLAR IRRADIANCE = 1000 W/m^2 (OR) 1 kW/m^2

SOLAR IRRADIATION (H) (INDUSTRY - INSOLATION)

THE SOLAR ENERGY WHICH STRIKES A SURFACE OVER A PERIOD OF
TIME

$$\text{J/m}^2 \text{ (OR) } \text{mJ/m}^2 \text{ (OR) } \text{kWh/m}^2$$

VARIATION OF POWER WITH IRRADIANCE



EACH ELECTRON CIRCULATING THE
MODULE THROUGH EXTERNAL LOAD
THE HIGHER THE STRIKING RATE OF
SUN, MORE ELECTRON WILL BE CIRCULATING

VARIATION OF POWER WITH IRRADIANCE



EACH ELECTRON CIRCULATING THE MODULE THROUGH EXTERNAL LOAD THE HIGHER THE STRIKING RATE OF SUN, MORE ELECTRON WILL BE CIRCULATING

INSIDE OPERATING PART

