KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

COLLEGE OF ENGINEERING

BSC. PETROCHEMICAL ENGINEERING



BASIC ELECTRONICS

STUDENT EXAM NUMBER

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CHARACTERISTICS OF A SEMICONDUCTOR DIODE

AIM: The experiment demonstrates the forward and reverse behavior of a diode.

COMPONENTS AND INSTRUMENTS:

* Power supply
* Switch
* Variable resistor 1000Ω
* Fixed resistor 56Ω
* Diode
* Voltmeter
* Ammeter

*FORWARD-BIAS*

R

R

REVERSE-BIAS

R

R

BLOCK *DIAGRAM*

PLATE

POWER

AMMETER

VOLTMETER

TABLE FOR *FORWARD*-*BIAS*

|  |  |
| --- | --- |
| **VOLTAGE (V)** | **CURRENT (mA)** |
| 0 | 0.00 |
| 0.1 | 0.00 |
| 0.2 | 0.00 |
| 0.3 | 0.00 |
| 0.4 | 0.00 |
| 0.5 | 0.00 |
| 0.6 | 0.02 |
| 0.7 | 0.18 |
| 0.8 | 0.61 |
| 0.9 | 1.11 |
| 1.0 | 11.5 |

TABLE FOR *REVERSE*-*BIAS*

|  |  |
| --- | --- |
| **VOLTAGE (V)** | **CURRENT (μA )** |
| 0 | 0.0 |
| 0.5 | 0.0 |
| 1.0 | 0.0 |
| 1.5 | 0.0 |
| 2.0 | 0.0 |
| 2.5 | -0.4 |
| 3.0 | -3.0 |
| 3.5 | -15.2 |
| 4.0 | -56.3 |
| 4.5 | -179.4 |
| 5.0 | -421.0 |
| 5.5 | -1070.0 |
| 6.0 | -1665.0 |