**ASSIGNMENT-1**

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| 1. What is the principle of solar cell? What are the main effects of solar radiation on its efficiency? |  |
| * Solar cell principle with neat sketches | **4M** |
| * Effect of solar radiation on its efficiency |  |
| 2. Write a short note on different types of solar cells and it’s IV characteristics? |  |
| * Types of solar cells | **2M** |
| * IV characteristics | **4M** |
| 3. What is fuel cell? Explain its principle. What are different types of fuel cells? |  |
| * Fuel cell Defnition | **1M** |
| * Principle & operation | **4M** |
| * types | **1M** |
| 4. Write a short note on biological conversion of Biomass into gaseous and liquid forms of biofuel. |  |
| * Gaseous form Conversion | **3M** |
| * Liquid form conversion | **3M** |
| 5. Differentiate between renewable and nonrenewable energy sources. |  |
| * 6 differences | **6M** |
| 6. Explain open circuit and short circuit characteristics of solar cell. |  |
| * Characteristic Diagram | **2M** |
| * Explanation | **4M** |

**MID-I**

**SECTION-A 6\*1=6M**

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| 1. a) List any two renewable sources of energy |  |
| * 2 Renewable Energy sources | **1M** |
| b) Write the chemical balance equation governing the fuel cell operation. |  |
| * Fuel Cell Equation | **1M** |
| c) What is meant by Bio Mass? |  |
| * Bio Mass Definition | **1M** |
| d) Define photo voltaic effect. |  |
| * Photo Voltaic Effect Definition | **1M** |
| e) List down some applications of solar energy. |  |
| * 2 Applications | **1M** |
| f) Draw the IV curve of solar cell and mark open circuit voltage and short circuit current on the curve |  |
| * IV curve diagram | **1M** |

**SECTION-B 1\*6=6M**

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| 2. Compare Renewable and Conventional Energy sources in at least 8 aspects |  |
| * 6 Differences | **6M** |
| 3. Explain the working of Hydrogen – Oxygen fuel cell. What are the factors that affect the power output of a fuel cell? |  |
| * Working of Hydrogen – Oxygen fuel cell | **4M** |
| * Factors that affect the power output of a fuel cell | **2M** |

**SECTION-C 1\*6=6M**

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| 4. a) Explain briefly the equivalent circuit for solar cell. |  |
| * Equivalent circuit model and derivation | **3M** |
| 4. b) Explain briefly the different characteristics of Solar cell |  |
| * Characteristics with the help of a diagram | **3M** |
| 5. Explain the effect of shunt and series resistance parameters on the solar cell performance. |  |
| * Effect of shunt resistance on I-V characteristics | **3M** |
| * Effect of series resistance on I-V characteristics | **3M** |