**Printed Pages : 1** **Roll No.** | | | | | | | | | | | **MTED-032**

## M.TECH.

## THEORY EXAMINATION (SEM–II) 2016-17

## NON CONVENTIONAL ENERGY SOURCES & ENERGY CONVERTERS

***Time : 3 Hours*** ***Max. Marks : 70***

***Note :*** *Be precise in your answer. In case of numerical problem assume data wherever not provided.*

### SECTION- A

**1. Attempt all parts of this Section** **7 × 2 = 14**

**(a)** Define Bituminous Coal.

**(b)** What is the Solar constant?

**(c)** Draw V-I characteristics of a solar cell?

**(d)** What is reflected radiation?

**(e)** Explain solar kettles.

**(f)** Define solid oxide fuel cell.

**(g)** What is solidity?

### SECTION- B

**2. Attempt any three parts of the following** **3 × 7 = 21**

**(a)** What are the applications of flat plate collectors? Explain each with block diagram.

**(b)** Explain different types of photovoltaic systems using block diagram.

**(c)** Write a note on:

(i) Solar cell material.

(ii) Application of PV system.

**(d)** Explain solar powered water pumping system with Configurations.

**(e)** Explain the operation and characteristics of Redox fuel.

### SECTION- C

**3. Attempt any all questions in this section.** **5 × 7 = 35**

**(a)** What are the relative merits and demerits of different Non-conventional energy resources?

**OR**

Explain solar radiation in detail.

**(b)** Explain the following terms.

(i) Central power station solar PV system

(ii) Distributed solar PV system.

**OR**

What is Maximum Power Point Tracking and How Does it Work?

**(c)** How to Design Solar PV System?

**OR**

What are solar inverter and converter and how does it work?

**(d)** Draw and explain typical solar power plant layout.

**OR**

What are the types of wind machine? Explain in detail.

**(e)** Write a note on wind penetration and its effect.

**OR**

What are the different types of fuel cells? Explain them.