Reg. No.									

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent Institution of MAHE, Manipal)

II SEMESTER M.TECH (ENERGY SYSTEMS & MANAGEMENT / POWER ELECTRONICS & DRIVES) END SEMESTER EXAMINATIONS, APRIL 2018

SUBJECT: DISTRIBUTED ENERGY SYSTEMS [ELE 5202]

REVISED CREDIT SYSTEM

Time: 3 Hours **Date: 19 April 2018** **Max. Marks: 50**

Instructions to Candidates:

- Answer **ALL** the questions.
- Missing data may be suitably assumed.

1A. Define the following :

a. slope
b. declination angle
c. solar azimuth angle
d. day length
e. latitude angle
f. longitude angle ***(03)***

1B. With a neat figure explain the construction and working of pyrano-meter. ***(03)***

1C. With a neat diagram, explain the construction and working of natural circulation solar water heater. ***(04)***

2A. With a neat diagram explain the construction and working of solar pond power plant. ***(03)***

2B Describe the construction and working of solar cell with a neat diagram. ***(03)***

2C. With a neat diagram, explain the construction and working of horizontal axis wind power plant. ***(04)***

3A. Describe the problems in wind mill related with environmental aspects. ***(03)***

3B Explain the extraction of power from tidal power plant with double basin operation with a neat figure. ***(03)***

3C A village consisting of 90 families, each family consisting of 5 persons. Village survey report gives the following information about cattles.

a. Cows-100 nos
b. Oxes-120
c. Buffles-50
d. Pig-10

A community biogas plant is to be designed only for cooking and house lighting. Calculate digester volume. ***(04)***

4A. Explain the intentional islanding of DG with proposed detection method, flow chart and control strategy. ***(03)***

4B. Describe the Voltage Control Techniques for Electrical Distribution Networks Including Distributed Generation with a neat figure. ***(03)***

4C. Explain the control scheme for standalone wind energy conversion system with the help of figure and flow chart. ***(04)***

5A. Explain the Coordinated Power Control of Wind-PV-Fuel Cell for Hybrid Distributed Generation Systems. ***(04)***

5B. Explain the Issues related to Integration of Distributed Generation in to Electricity Networks. ***(03)***

5C Describe different Energy Storage Technologies in Smart Grid. ***(03)***