Reg. No.									

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

I SEMESTER M.TECH (ENERGY SYSTEMS & MANAGEMENT)

END SEMESTER EXAMINATIONS, NOVEMBER 2018

SUBJECT: ADVANCED ENERGY MANAGEMENT [ELE 5103]

REVISED CREDIT SYSTEM

Time: 3 Hours **Date: 27 November 2018** **Max. Marks: 50**

Instructions to Candidates:

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

1A. Give an account of the salient features of the Electricity Act 2003. ***(05)***

1B. Which are the methods for achieving Maximum demand control? ***(05)***

2A. Explain the theory behind economic load dispatch neglecting losses. ***(05)***

2B. How do you evaluate a renewable energy project/proposal? ***(05)***

3A. Explain the important control functions of Energy Management System? ***(05)***

3B. With block diagram explain various states of power systems. ***(05)***

4A. Bring out the salient features of SCADA Protocols. ***(05)***

4B. Bring out the differences between SCADA and DCS. ***(05)***

5A. Reduce the following (4x4) bus admittance matrix to (2 x 2) Ybus using matrix algebra

$$Y_{Bus}=\begin{bmatrix} -j10 & j3 & 0 & j4 \\ j3 & -j8 & j2 & j1 \\ 0 & j2 & -j12 & j5 \\ j4 & j1 & j5 & -j9 \end{bmatrix}$$ ***(04)***

5B. The bus voltages of the network shown in Fig.5B are $V_1 = 1.02\angle 0^0$, $V_2 = 1.0329\angle 3.917^0$ and $V_3 = 0.9744\angle -1.7285^0$. Obtain the active and reactive power losses in all the three lines and power supplied by generator G_1. ***(06)***

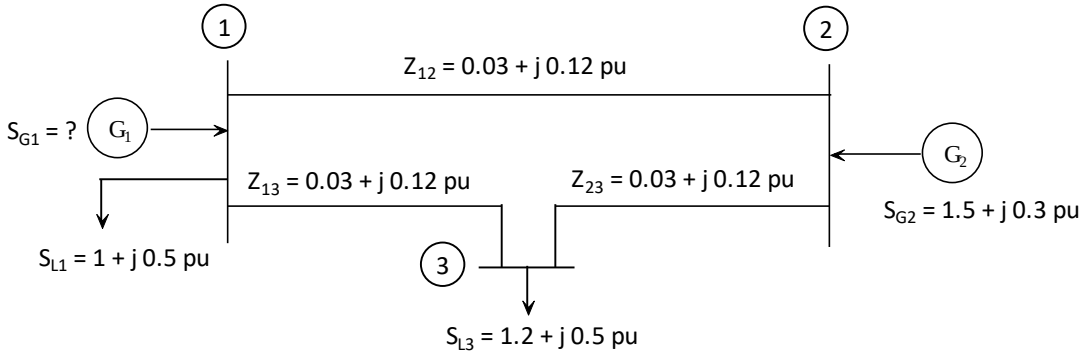

Fig.5B