22540

12425

3 Hours / 70 Marks Seat No. | | | | | | | | |

Instructions : (1) All Questions are *compulsory.*

(2) Illustrate your answers with neat sketches wherever necessary.

(3) Figures to the right indicate full marks.

(4) Assume suitable data, if necessary.

(5) Preferably, write the answers in sequential order.

Marks

1. Attempt any FIVE of the following : **10**

(a) List wind speed requirement for various windy sites.

(b) State working principle of converter used in wind power plant.

(c) Explain briefly, procedure to troubleshoot faults for solar PV system.

(d) List four features of large solar power plant.

(e) Write four precautions while doing maintenance of wind power plants.

(f) State four types of wind power plant with one line description for the type of generator used.

(g) What is aerodynamic braking of wind turbine ?

2. Attempt any THREE of the following : **12**

(a) Describe the working principle of signal conditioner used in solar system. Draw its neat sketch.

(b) List component and function of solar power plant. List any two features of solar power plant.

(c) Describe two features of IGCT and two features of GTO used in small wind turbine.

(d) Describe the working of solar PV system used in water pump system.

3. Attempt any THREE of the following : **12**

(a) Explain about charge controller and inverter used in solar PV system.

(b) Explain briefly about central string and module inverter configuration.

(c) Compare solar PV system and wind power system (four points).

(d) Compare back-to-back and matrix converter (any four points including diagram).

4. Attempt any THREE of the following : **12**

(a) What is the need for the given maximum power point tracking system in solar PV system ? Justify.

(b) Explain the limitations of solar PV system. List any four specifications of solar PV system.

(c) Describe testing procedure of charge control circuit of solar street light system.

(d) Describe the importance of matrix converter used in wind power plant.

5. Attempt any TWO of the following : **12**

(a) List 4 specification of batteries used in solar power plant. Also list the types of batteries used in solar PV system.

(b) Explain the principle of hybrid wind solar system. List important features of hybrid wind solar system.

(c) Explain with neat sketch the working principle of soft starter used in wind power system.

6. Attempt any TWO of the following : **12**

(a) Describe briefly about inverter, series panel connection, parallel panel connection and photovoltaic effect related to photovoltaic solar system.

(b) Compare Geared wind power plant and direct drive wind power plant. (any four points with diagram)

(c) Explain with neat sketch, roof top home solar system. List the limitations of the said system.
