

22540

23124

3 Hours / 70 Marks

Seat No.

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- 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) Describe the working of vertical axis wind turbine.
- (b) List any two advantages and disadvantages of horizontal axis wind turbine.
- (c) Explain principle of hybrid wind solar system.
- (d) Explain working of soft starter used in wind power plant.
- (e) List various types of batteries used in solar PV system.
- (f) Draw symbols for IGBT & GTO.
- (g) Explain need of signal conditioner in solar PV system.

2. Attempt any THREE of the following :

12

- (a) Describe the components and function of hybrid wind solar system.
- (b) Describe the features of various power electronic devices in small wind turbines.
- (c) Describe the working principle of charge controller in solar PV system.
- (d) Explain major features of wind power plant based on electric generator.



- 3. Attempt any THREE of the following : 12**
- (a) Differentiate between geared wind power plants with direct drive wind power plants.
 - (b) Write any four features of large solar plants and roof top home solar system.
 - (c) Describe the working principle of matrix converter in wind power plant.
 - (d) Compare flat plate collectors with concentrating collectors.
- 4. Attempt any THREE of the following : 12**
- (a) Explain advantages and limitations in operation of back to back converter.
 - (b) Compare Type A, Type B, Type C and Type D wind power plant with any two points.
 - (c) Describe the grid connecting issues with respect to grid integrated solar system.
 - (d) Describe the importance module inverter configuration in the operation of photovoltaic system.
 - (e) State the need for maximum power point tracking system in solar PV system.
- 5. Attempt any TWO of the following : 12**
- (a) Explain main selecting criterias in site selection for wind power plant.
 - (b) Describe the procedure of troubleshoot the faults of wind power system.
 - (c) Describe features and specifications of batteries used in solar PV system.
- 6. Attempt any TWO of the following : 12**
- (a) Enlist different types of inverters used in solar PV system. Describe any one type of inverter for solar PV system with neat diagram.
 - (b) State and explain the troubleshooting problems of testing charge control circuit of solar street light system.
 - (c) State the procedure of scheduled and preventive maintenance of a solar PV system used in water pump system.
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