

22/11/2024 ELECTRICAL SEM-V C SCHEME DLOC-RES QP CODE: 10065276

Time: 3 Hours

Marks: 80

- Note: -
1. Question No. 1 is compulsory
 2. Attempt any three questions out of remaining five questions
 3. Assume suitable data if necessary & justify the same
 4. Figures to the right indicates marks.

- Qu.1** Attempt any Four.
- (a) Differentiate between renewable and non-renewable energy sources [5]
 - (b) Discuss the various losses occurs in solar cell. [5]
 - (c) Explains the working of wind energy system along with its various components. [5]
 - (d) Draw and describe the static characteristics of fuel cell in brief [5]
 - (e) Write a short note on wave energy generation [5]
 - (f) Describe the working of liquid flat plate collector. State its advantage. [5]
- Qu.2** Discuss the effects of different parameters on the performance of liquid flat plate collector?
- (a) [10]
 - (b) Enlist different types of fuel cell. Explain the working of Molten carbonate fuel cell with neat diagram in detail. [10]
- Qu.3** Illustrate the significance of MPPT in Solar PV system with neat block diagram.
- (a) Explain incremental conductance MPPT algorithms with the help of suitable diagram. [10]
 - (b) What are the different methods to use solar thermal energy? How Solar air heater is useful for energy generation? Explain [10]
- Qu.4** Draw the power converter topology used for double feed induction generators (DFIG) in wind turbines. Explain its working in detail
- (a) [10]
 - (b) What is charge controller? Define the commonly used set points. Explain Shunt and series type charge controller in brief. [10]
- Qu.5** Discuss the design methodology of standalone PV system for any one application
- (a) [10]
 - (b) Brief the methods of power control in WES? Discuss in detail how power control is achieved using Pitch control method. [10]
- Qu.6** Draw the two junction model of solar cell. Also draw I-V and P-V characteristics of solar cell at STC. Specify the essential parameters on the characteristics. Analyze the impact of change in solar radiation and temperature on solar PV characteristics with a neat diagram
- (a) [10]
 - (b) Explain the working principle of Tidal energy conversation system with neat diagram. [10]
