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Question
Write any two environmental aspect of electric energy conversion.
Inter the significance of non-conventional energy sources.
What is called green house gas effect?
How Fuel Cell is treated as renewable energy source?
What are the advantages of using grid connected solar PV system ?
Mention the factors involved in biomass conversion.
Write down the current equation of solar array.
List out the major factors influencing the amount of GHG emissions.
List out the salient features of renewable energy resources.
Define specific rated capacity of wind turbine.
What is liquid bio mass?
What is fuel cells?
What is hydrogen energy?
What are the basic types of solar cells?
Compare renewable and non-renewable energy sources.
What are the advantages of wind energy?
List the various renewable resources.
Define betz limit.
State the merits of renewable energy sources.
Mention some of the organic materials used in biomass plant.
Analyze the different types of fuel cells? Explain them with neat diagrams.
What is Hydrogen energy? Explain the operation of hydrogen energy system with a neat schematic.
Analyze the principle of generation of Bio gas and mention the factors affecting its generation.
Illustrate the following with neat schematics: (i) Biomass energy system (ii) Energy from ocean.
Illustrate with a neat diagram, the different types of concentrating type solar collector with its operation an working principles.
Analyze the necessity for use of renewable energy sources and how renewable energy based power generation saves the environment.
Discuss the current status of biomass based renewable energy technologies and solar photovoltaic technologies.
List out the available renewable energy sources and analyze any three sources.
Analyze how solar and wind energy sources plays significant role of electric power generation.
Briefly explain the working principle of fuel cell.Describe the concept of power generation using biomass.
Illustrate the operating principle of any four types of renewable energy sources.
A horizontal axis wind turbine has a diameter of 6 m. When the wind speed unaffected by the turbine is 10 m/s, the turbine rotates at 300 rpm and produces 5 kw of mechanical power. Find the tip sped ratio and the power coefficient.
Derive an expression of power extracted from the wind turbine.
Discuss the impact of following renewable energy generation on environment i)wave energy ii) wind energy system iii)ocean energy
Why permanent Magnet Synchronous generator are preferred for low speed wind applications?

Distinguish between squirrel cage induction generator and Doubly fed Induction Generator.
Draw the angular relationship of abc and dq winding in an induction generator.
What are the advantages of permanent magnet synchronous generator?
Draw the speed –torque curve of induction motor.
Write the advantages of wound rotor induction generator used in wind power generation.
Name any four types of generators used in wind energy conversion systems.
Define tip-speed ratio.
Define Doubly fed.
What are the requirements of generators of wind turbine?
What are the power electronics components needed in wind energy interface?
What are the disadvantages of SCIG configuration in wind energy conversion system?
Dervive the characteristics of DFIG induction machine.
What are the merits of squirrel cage induction generator for wind energy conversion?
Draw the equivalent circuit model of a PMSG.
Mention few permanent magnet materials used in designing PMSGs.
Comparte SCIG and DFIG.
what is reference frame transformation?
What are the advantages for operating with wind turbine?
Discuss the working principles of SCIG connected to a grid network .
Illustrate the working and principles of grid connected PMSG in wind power plant.
Discuss squirrel cage induction generator characteristics and uses.
Analyze the dynamic behavior of permanent magnet synchronous generator with respect to wind power variations.
Illustrate the basic structure of squirrel cage Induction Generator and explain its operation.
Analyze doubly fed induction generator with neat sketch and also discuss its characteristics and limitations briefly.
Analyze the construction and working of permanent magnet synchronous generator.
Analyze the steady equivalent circuit model and performance characteristics of Squirrel Cage Induction Generator (SCIG) in detail.
A three phase diode bridge is supplied by a synchronous generator whose Excitation emf is 1.06 p.u. and synchronous reactance is 0.25 p.u. Assuming continuous load current of 0.8 p.u. Determine the percentage of the dc output voltage of its no-load voltage and the total rating of the Rectifier. Neglect diode drops.
Draw the I-V and P-V characteristics of solar cell.
Mention the factors considered in the selection of inverter and battery sizing.
What is the need for Buck-Boost converter for Grid Interactive inverters?
Write the special requirements of Grid interactive inverters.
Draw the block diagram of solar photovoltaic system.
What are the factors involved in battery sizing.
What is the function of boost converter in solar photovoltaic system ?
What is called matrix converter?
What are the advantages of boost and buck converters?
What are the factors to be considered for the selection of batteries for solar energy conversion system?
What are the advantages of dc link inverters?
Define the photo conversion efficiency of the PV cell.
What are the role of inverter in stand alone application?
Draw the circuit diagram of buck dc-dc converter.

List out the functions of charge controller in PV system.
Analyze the operation and control of matrix converter with its circuit diagram and switching condition.
Illustrate the operation of following converters: (i) Three phase AC voltage controller (ii) PMW inverter.
Illustrate the power circuit of Boost converter circuit used for solar Photovoltaic system and explain the operation for changing the operation for changing the DC voltage from one level to another level .
Analyze the power circuit for three phase PWM inverter used for wind energy conversion system and explain its operation.
Illustrate with a neat diagram ,a power electronic circuit to interface Electrical system to the grid.
Discuss the control strategy used in grid interactive inverters.
Discuss the control strategy used in grid-interactive power converter system with neat diagram.
Discuss any two power conditioning schemes using in solar PV system with neat diagram.
Analyze the operation of boost converter scheme used for photovoltaic energy conversion system with relevant graphs and equation.
Analyze in detail about grid integrated PV system and discuss the issues of grid connection briefly .
Where the implementation of grid-integrated solar PV systems has a substantial impact on the local grid ?
A dc fan of 24 W needs to be run on solar PV during day time only. What should be the capacity of PV panel and power converter used in it? Draw the power circuit configurations. List down all the Possible design issues related to this arrangement.
In a DC chopper,the average load current is 30Amps,chopping frequency is 250 HZ.Supply voltage is 110 volts.Calculate the ON and OFF periods of the chopper if the load resistance is 2 ohms.
For the single phase fully,controlled bridge is connected to RLE load.The source voltage is 230 V,50 HZ.The average load current of 10A continuous over the working range.For R=0.4 ohm and L=2mH,Compute:i) Firing angle for E=120 V,ii)Firing angle for E=-120V,iii)In case output current is constant find the input power factors for both parts a and b.
Define some of the issues in stand-alone solar system.
Classify the types of WECS based on the rotational speed of turbines.
What are the technical issues to be considered for grid integration of Wind energy conversion?
How grid integrated system for solar PV differs from wind energy system?
What are the classifications in wind energy conversion system based on electrical power output?
List out the problems involved in grid connection.
Define pitch control in wind power system.
List out the functions of a charge controller in PV system.
Draw the output characteristics of wind turbine and lable all the speed ranges.
Mention different types of energy storage used in renewable energy .
List out the grid connection issues.
Define Fill Factor.
What are the types of wind energy conversion system?
What is grid interactive inverter?
What are the advantages of matrix converters?
Illustrate a brief note on stand-alone operation of fixed and fully variable speed WECS.
Analyze the operation of solar model in grid integrated system with and without battery backup.
Illustrate with a neat block diagram of photovoltaic conversion system which is designed to supply power to Stand lone load.Describe the operation of main components used in it.
Analyze With a functional block diagram, describe the functions of main components used in grid connected permanent magnet synchronous generator based wind energy conversion system.

Analyze the grid integrated SCIG based wind energy conversion system.
Analyze a detailed note on standalone operation of photovoltaic system. What are the main components used in it ? Explain their functionalities.
Illustrate the circuit model of grid integrated solar system.
What is the need of grid integration of wind energy conversionWhat is the need of grid integration of wind energy conversion integration is done for Double-Fed Induction Generator (DFIG) based wind energy conversion system?
Writ short notes on the following : i) Current regulated PWM inverters. ii) Selection of inverters. iii) Matrix c
Illustrate a case where innovative power converters were applied to enhance the performance of grid-connected Wind Energy Conversion System .
Analyze the impact on power quality,grid integration,and overall system efficiency.
What are the types of hybrid system?
Define smart power tracker.
What is the need for hybrid energy system?
What is called Maximum power point tacking?
Draw the PV characteristics of solar PV system and mark the maximum point.
List the various MPPT techniques.
Give the range of hybrid systems.
What are the types of PV-diesel hybrid systems?
What are the various stages adopted in fuzzy logic control?
What are the characteristics of distributed energy resources?
What are the components of PCCU ?
What are the advantages of PV-Diesel hybrid system?
What are Hybrid Renewable Energy Systems?
Define fill factor (FF) of solar cell.
What are the advantage of using hybrid energy system ?
Discuss different hybrid systems configurations consisting of wind turbines and solar power plant.
Illustrate the factors to be considered for placing the wind-PV system. Discuss its plant details,operating period and environmental aspects for assumed residential load.
Analyze the various configurations of hybrid energy systems.
Illustrate the merits and demerits of the different configurations.
Illustrate the commonly used Maximum Power Point tracking(MPPT)algorithms for solar PV system. With the help of flow chart, explain perturb and observe MPPT algorithm.
Analyze the switched configuration of Diesel -PV hybrid system.
Illustrate the series hybrid system with necessary diagrams In detail.
Illustrate the following methods of MPPT control algorithm: i) Incremental conductance method ii) Fuzzy logic controller .
What is a hybrid system? Mention the need for hybrid system.
Analyze the Incremental counductance MPPT algorithm with a neat flow chart.
Illustrate the different types of MPPT algorithm .
Illustrate the block diagram of hybrid PV system which should be able to supply the power to the load For 24 hours without interruption. It should be using solar radiation, diesel and wind as the source of energy.

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Write the principle of wind energy conversion.
List the components of wind power plats.
List out various classification of wind turbine and its applications.
Name any two important wind power plants in India.
Define tip speed ratio.
What is the condition for maximum output power from a wind turbine?
State the different types of wind mills.
Mention the factors which determine the power in wind.
State Betz law.
How to choose a wind farm site?
How does a wind turbine generator work?
What are the differences between horizontal and vertical axis wind turbines?
What is a hybrid system in wind energy?
What are the environmental advantages of wind power?
How do you estimate wind energy?