Department of Electrical Engineering

IV Year VII Semester

7EE 5-11: WIND AND SOLAR ENERGY SYSTEMS

Note: Each Assignment of Maximum marks10.All question carries equal marks.

ASSIGNMENT-I

1. What do you mean by cut-in speed, cut-out speed and rated speed of wind turbine?	BLT-1	CO-1
2. Write a short note on the difference between Induction generator and synchronous generator deployed in wind turbine?	BLT-2	CO-1
3. List the power electronic converters used in wind energy conversion. Also explain the converter control.	BLT-1	CO-1
4. Explain and draw the schematic diagram of Horizontal Axis and Vertical Axis Wind turbine	BLT-2	CO-1
5. Explain the Indian and Global Statistics.	BLT-2	CO-1

ASSIGNMENT-II

1. Draw schematic diagram and explain the different wind generator topologies: Induction Generator, Doubly-Fed Induction Generator, Permanent Magnet Synchronous Generators	BLT-2	CO-2
2. Explain the fixed and variable speed wind turbine.	BLT-3	CO-2
3. Describe double fed induction generator in detail.	BLT-2	CO-2
4. Write a short note on the difference between Induction generator and synchronous generator deployed in wind turbine?	BLT-1	CO-2
5. What is generator converter configuration in wind turbine. Why power converters are used in wind power generation?	BLT-2	CO-2

ASSIGNMENT-III

1. What is parabolic trough solar collector? Explain the working with near diagram.	BLT-2	CO-3
2. Estimate solar energy availability of a solar cell on horizontal and tilted surface.	BLT-5	CO-3
3. A single solar cell (10cm*10cm) produces a voltage of 0.5 V and a current upto 2.5 A. If the solar isolation is 800 w/m². Calculate the efficiency of the solar cell.	BLT-3	CO-3
4. What is a solar day? What is the difference between solar day and sidereal day?	BLT-2	CO-3
5. What is solar PV module and solar array? Draw V-I and P-V characteristics of solar module.	BLT-4	CO-3

*BLT: BLT shows the **Bloom's taxonomy** levels.

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ASSIGNMENT-IV

1. Explain the principle of Maximum Power Point Tracking (MPPT) with proper diagram. Also write some MPPT algorithms.	BLT-2	CO-4
2. Explain construction and working of a solar cell.	BLT-2	CO-4
3. What is solar PV module and solar array? Draw V-I and P-V characteristics of solar module.	BLT-2	CO-4
4. What is the best solution for homes and business out of amorphous, monocrystalline and polycrystalline solar panels?	BLT-1	CO-4
5. Illustrate the converter control scheme for DC side (PV side) and AC side (grid side) of solar system in detail.	BLT-3	CO-4

ASSIGNMENT-V

1. What is hybrid and isolated operations of solar PV and wind systems?	BLT-1	CO-5
2. Explain the behaviour of solar PV and wind farm during grid disturbances.	BLT-2	CO-5
3. Write the names of most common types of power quality problems.	BLT-1	CO-5
4. What do you mean by fault ride through?	BLT-3	CO-5
5. Write applications of solar pond.	BLT-2	CO-5

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7ME6-60.2: QUALITY MANAGEMENT

Note: Each Assignment of Maximum marks10.All question carries equal marks.

ASSIGNMENT-I

1	What is a Von Neumann architecture?	BLT-2	CO-1
2	Define the register transfer language.	BLT-2	CO-1
3	Design a 4-bit combinational circuit decremented using four full adder circuits.	BLT-6	CO-1
4	Draw a circuitry diagram for common bus system for four register using multiplexers	BLT-2	CO-1
5	What do you understand by arithmetic micro-operation? Explain with example.	BLT-2	CO-1

ASSIGNMENT-II

1	What is difference between direct and indirect addressing modes? Explain implied mode of addressing also.	BLT-2	CO-2
2	Explain the instruction format. What do you understand by instruction pipeline?	BLT-3	CO-2
3	Define instruction pipeline and its problem. Explain pipeline speed up, efficiency and throughput.	BLT-2	CO-2
4	What is pipelining? what is maximum speed up that can be attained ?.	BLT-2	CO-2
5	Construct an instruction pipeline. It is possible to attain maximum speed up in an instruction pipeline?	BLT-5	CO-2

ASSIGNMENT-III

1.	Explain the term leadership for Decision making and Strategic planning Communications?	BLT-2	CO-3
2.	What do you mean by Quality Audit. Explain its procedure with the help of diagram?	BLT-2	CO-3
3.	How International Standard ISO 9001 is important for Quality Management System.	BLT-3	CO-3
4.	Explain DMAIC methodology. How it is similar to or different from the Deming cycle?	BLT-2	CO-3
5.	What are the benefits of ISO registration? Explain ISO 14000 in detail?	BLT-2	CO-3

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ASSIGNMENT-IV

1	How can we improve the quality of the Product? Explain in detail.	BLT-4	CO-4
2	What is the methodology use behind Quality Function Deployment (QFD)?	BLT-1	CO-4
3	Explain the term Robust Design in detail with the help of an example. Why robust design is important?	BLT-2	CO-4
4	What are the benefits or advantages of Quality Function Deployment?	BLT-1	CO-4
5	How we can build a solid product Strategy to improve the product Quality?	BLT-4	CO-4

ASSIGNMENT-V

1	Briefly explain Design failure mode and effect analysis?	BLT-1	CO-5
2	Describe lean six sigma approach to new product development?	BLT-2	CO-5
3	How do you measure product Reliability. Why is product Reliability is important?	BLT-1	CO-5
4	How six sigma plays an important character in product Development?	BLT-4	CO-5
5	What is the role of Product Reliability analysis in Design Failure?	BLT-2	CO-5

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