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Question Paper Code	12603
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**B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2024**

Seventh Semester

**Electrical and Electronics Engineering**

**20EEPC701 - DISTRIBUTED GENERATION AND MICROGRID**

Regulations - 2020

Duration: 3 Hours

Max. Marks: 100

**PART - A (10 × 2 = 20 Marks)**

Answer ALL Questions

	Marks	K-Level	CO
1. What are the different types of renewable energy?	2	K1	CO1
2. List out the application of wind power.	2	K1	CO1
3. Mention the applications of solar energy.	2	K1	CO2
4. Define solar irradiance.	2	K1	CO2
5. What are the two major classifications of biomass resources?	2	K1	CO3
6. What are the types of energy that can be generated from ocean?	2	K1	CO3
7. What are the benefits of Distributed Generation?	2	K1	CO4
8. What are the different types of BESS available?	2	K1	CO4
9. What is a microgrid?	2	K1	CO5
10. What are the challenges in micro grid?	2	K1	CO5

**PART - B (5 × 13 = 65 Marks)**

Answer ALL Questions

11. a) Compare the conventional and non-conventional energy sources and discuss the indian and international energy scenario.	13	K2	CO1
<b>OR</b>			
b) Discuss in details the various types Wind power plants.	13	K2	CO1
12. a) Explain briefly about the solar thermal power plant. Also discuss its advantages, disadvantages and applications.	13	K2	CO2
<b>OR</b>			
b) Explain the Perturb and Observe MPPT algorithm with a flow chart.	13	K2	CO2
13. a) Discuss different hybrid systems configurations consisting of wind turbine and solar power plant.	13	K2	CO3
<b>OR</b>			
b) Briefly discuss the components of tidal power systems with a neat block diagram.	13	K2	CO3

14. a) Explain in detail about the IEEE standard interconnecting the grid and sources for Distributed generations. 13 K2 CO4

**OR**

b) With neat diagram explain the various energy storage elements and mention its merits and demerits. 13 K2 CO4

15. a) Explain the structure of micro grid in AC system. 13 K2 CO5

**OR**

b) Explain the role of central controller in stand-alone and grid connected mode of operation of micro grids. 13 K2 CO5

**PART - C (1 × 15 = 15 Marks)**

16. a) Discuss the impact of grid integration with NCE sources on existing power system. 15 K2 CO4

**OR**

b) What are the different topologies of the power electronic interface in DC microgrid? 15 K2 CO2