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**Question Paper Code: 39520**

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2018

Elective

Electronics and Instrumentation Engineering

01UEI920 - FUNDAMENTALS OF RENEWABLE ENERGY SYSTEMS

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. List the different types of solar cells.
2. Define solar constant.
3. Write and explain wind power equation.
4. What are the advantages of wind power?
5. Write any two items used as biomass fuels.
6. Mention some organic materials used in bio-mass plant.
7. Define Vertical Axis Wind Turbine (VAWT).
8. Mention any two environmental issues of fuel cells.
9. What is geothermal power?
10. Mention the type of tidal power turbine.

PART - B (5 x 16 = 80 Marks)

11. (a) Write about the availability energy consumption pattern and growth rate in India. (16)

Or

(b) What are the conventional sources of energy and explain briefly. (16)

12. (a) With a neat diagram, explain how wind energy can be converted into electrical energy. (16)

Or

(b) Explain the principle of building integrated PV system with suitable sketch. (16)

13. (a) Explain with neat sketches, the types and power generation of a biogas power plant. (16)

Or

(b) (i) Give a detailed description about the applications of gasifiers. (8)

(ii) Describe in detail about biochemical conversion involved in anaerobic digestion. (8)

14. (a) Compare the working, application, merits and demerits of any two fuel cells. (16)

Or

(b) With neat diagram, explain the technology adopted for production of hydrogen. List its application. (16)

15. (a) Explain how ocean tides are generated and how the power can be tapped? Discuss the limitations of this method. (16)

Or

(b) What is a fuel cell? Describe the principle of working of a fuel cell with reference to H<sub>2</sub>-O<sub>2</sub> cell. (16)