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**Question Paper Code: 31587**

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2017

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. How the wind mills are classified?
4. Write the wind power equation and name its functions.
5. Outline the constituents of biogas.
6. Write any two items used as biomass fuels.
7. List some applications of fuel cells.
8. What is photoiysis?
9. Mention the advantages of tidal power plant.
10. Differentiate tide and wave.

PART - B (5 x 16 = 80 Marks)

11. (a) Describe about different types of solar energy collectors with neat diagrams. (16)

Or

(b) Explain with a neat sketch the working principle of standalone and grid connected solar system. (16)

12. (a) Write short notes on:

(i) Wind energy conversion devices (8)

(ii) Aerodynamics of wind turbine rotor (8)

Or

(b) Discuss in detail about horizontal and vertical wind mill with suitable diagrams. (16)

13. (a) (i) Identify the factors affecting biogas generation. (10)

(ii) State the term pyrolysis and distinguish the method followed for gasifiers classification. (6)

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) With neat sketch, explain the principle and working of any fuel cell. (16)

Or

(b) Describe the different methods of production of hydrogen. (16)

15. (a) Explain with neat sketch, the methods of operation of tidal power generation. (16)

Or

(b) With a neat sketch, describe the energy conversion operation involved in geothermal power plant. (16)