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Question Paper Code: U9372

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 2024

Open elective

Civil Engineering

21UEE972– RENEWABLE ENERGY TECHNOLOGY

(Common to All branches)

(Regulations 2021)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (5x 20 = 100 Marks)

1. (a) Explain the consequences of Global Warming due to fossil fuels. CO1- U (20)
Or
(b) Explain briefly the impact of conventional sources of energy on environment. CO1- U (20)
2. (a) (i) Analyze the effect of partial or complete shadowing of a cell in a solar module. (10 marks) CO2- U (20)
(ii) Explain with a neat sketch the working principle of standalone solar photovoltaic system. (10 marks)
Or
(b) Draw and explain the central receiver system for thermal electric conversion systems with neat sketch. CO2- U (20)
3. (a) Derive and expression the relation between the wind power density and wind velocity. CO3- U (20)
Or
(b) Classify the wind energy systems and explain their working with neat sketch. CO3- U (20)
4. (a) Explain the procedure for ethanol production from sugarcane with neat layout diagram and mention the chemical equation. CO4- U (20)
Or
(b) Explain the working of biomass Cogeneration system with a neat sketch and also mention its applications. CO4- U (20)

5. (a) Draw and explain the operation methods of single basin arrangement of tidal energy. CO5- U (20)

Or

- (b) What is the basic principle of ocean thermal energy conversion? CO5- U (20)
What are the main types of OTEC power plants? Describe their working?