A **Reg. No. :** | | | | | | | | | | |

Question Paper Code: 59371

B.E./B.Tech. DEGREE EXAMINATION, APRIL 2019

Open elective

Civil Engineering

15UEE971 - NON CONVENTIONAL ENERGY RESOURCES AND APPLICATIONS

(Common to CSE, ECE, MECH, EIE ,IT and Chemical Engineering branches)

(Regulation 2015)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. Identify the non-renewable energy resource from the following: CO1- R

   (a) Coal (b) Fuel cells (c) Wind power (d) Wave power

2. The major cause for land degradation in our country is CO1- R

   (a) Soil erosion (b) Pollution of soil (c) Water-logging (d) None of the above

3. A liquid flat plate collector is usually held tilted in a fixed position, facing _____ if located in the northern hemisphere. CO2- R

   (a) North (b) South (c) East (d) West

4. Common energy source in Indian villages is: CO2- R

   (a) Electricity (b) Coal (c) Sun (d) Wood and animal dung

5. Boiling water reactor and pressurized water reactors are: CO3- R

   (a) Nuclear reactor (b) Solar reactor (c) OTEC (d) Biogas reactor

6. Tidal energy utilizes CO3- R

   (a) Kinetic energy of water (b) Potential energy of water

   (c) Both (a) and (b) (d) None of these

7. Common energy source in Indian villages is: CO4- R

   (a) Electricity (b) Coal (c) Sun (d) Wood and animal dung

8. Boiling water reactor and pressurised water reactors are: CO4- R

(a) Nuclear reactor (b) Solar reactor (c) OTEC (d) Biogas reactor

9. As wave travels, intensity CO5- R

(a) Increases (b) Remains same (c) Decreases (d) Varies

10. Which of the following is a disadvantage of most of the renewable energy sources? CO5-R

(a) Highly polluting (b) High waste disposal cost

(c) Unreliable supply (d) High running cost

PART – B (5 x 2= 10 Marks)

11. What are the impacts of Global warming CO1- U

12. Define fill factor CO2-U

13. What range of wind speed is favorable for wind power generation? CO3- Ana

14. Summarize the organic materials used in bio-mass plant CO4- U

15. Interpret the main hurdles in the development of tidal energy? CO5- Ana

PART – C (5 x 16= 80 Marks)

16. (a) Briefly explain the Importance of Non-Conventional energy sources. CO1- U (16)

Or

(b) Explain the Environmental aspects of Energy. CO1- U (16)

17. (a) Choose the appropriate solar collector for absorbing direct and diffuse radiation and explain it in detail. CO2-U (16)

Or

(b) Analyze the effect of partial or complete shadowing of a cell in a solar module CO2-U (16)

18. (a) Draw and explain the various parts of wind turbine generator with neat diagram. CO3-Ana (16)

Or

(b) With the help of block diagram, explain the function of various blocks of a wind energy conversion system CO3-Ana (16)

19. (a) Discuss the process of gasification of solid biofuels and the general composition of the gas produced along with its heating value? CO4- U (16)

Or

	(b)	Apply the process of converting biomass into ethanol and explain it in detail.	CO4- Ana	(16)
20.	(a)	Discuss how the geothermal energy is utilized for electric power Generation?	CO5- U	(16)
		Or		
	(b)	Sketch the block diagram of a fuel cell power plant and explain the details of each block.	CO5- U	(16)