Reg. No. \_\_\_\_\_\_\_\_\_\_\_\_\_

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**End Semester Examination – Nov / Dec – 2019**

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| **Code :** | **18AT2010** | **Duration :** | **3hrs** |
| **Sub. Name :** | **FUNDAMENTALS OF RENEWABLE ENERGY SOURCES** | **Max. Marks :** | **100** |

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| **Q. No.** | **Questions** | **Course Outcome** | **Marks** |
| **PART - A (20 X 1 = 20 MARKS)** | | | |
| 1. | How many years the coal reservoirs are estimated to last? | CO2 | 1 |
| 2. | Wind power has a share of \_\_\_\_\_\_% in total renewable energy installed capacity in india. | CO2 | 1 |
| 3. | The sun is \_\_\_\_\_\_\_\_\_\_\_\_ million Km away from the earth. | CO2 | 1 |
| 4. | What is meant by direct radiation? | CO3 | 1 |
| 5. | Express about Photovoltaic effect. | CO3 | 1 |
| 6. | List the classification of wind turbines. | CO2 | 1 |
| 7. | Name the reaction continuously going on in the sun. | CO2 | 1 |
| 8. | The value of solar constant is \_\_\_\_\_\_\_\_\_\_\_\_\_. | CO3 | 1 |
| 9. | What are pyrheliometers? | CO3 | 1 |
| 10. | Windmill was invented by \_\_\_\_\_\_\_\_\_\_\_\_\_ about 250 years ago. | CO2 | 1 |
| 11. | Turbine blades designed for three bladed turbines with the same tip-speed ratio have the same shape. Say True or False. | CO3 | 1 |
| 12. | The maximum wind energy availability is proportional to \_\_\_\_\_\_\_\_\_\_\_\_\_. | CO3 | 1 |
| 13. | Gasohol is a combination of \_\_\_\_\_\_\_\_\_\_\_\_\_. | CO1 | 1 |
| 14. | Name the main constituent in biogas. | CO1 | 1 |
| 15. | Classify winds. | CO2 | 1 |
| 16. | Name any two places where the geothermal power plant is installed. | CO2 | 1 |
| 17. | State the names of agricultural wastes used in biogas plant. | CO1 | 1 |
| 18. | Infer about cut-in speed in wind turbine. | CO3 | 1 |
| 19. | Name the types of biogas plants. | CO1 | 1 |
| 20. | Define fermentation. | CO1 | 1 |

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| **PART – B (10 X 5 = 50 MARKS)**  **(Answer any 10 from the following)** | | | |
| 21. | Categorize renewable energy sources. | CO2 | 5 |
| 22. | Compare non renewable energy sources with renewable sources. | CO2 | 5 |
| 23. | Differentiate between flat plate collector and concentrating collectors. | CO3 | 5 |
| 24. | Summarize the benefits and drawbacks when a solar plant is connected with grid. | CO3 | 5 |
| 25. | State the working of wind energy conversion system. | CO3 | 5 |
| 26. | Compare horizontal axis wind turbine with vertical axis wind turbine. | CO3 | 5 |
| 27. | Conclude the working of a biomass plant. | CO1 | 5 |
| 28. | Derive the determination of torque coefficients in a wind mill. | CO3 | 5 |
| 29. | Explain pyrolysis process. | CO3 | 5 |
| 30. | Justify - Biomass power plant is applicable in rural area. | CO1 | 5 |
| 31. | Summarize the merits and demerits of a bio gas plant. | CO1 | 5 |
| 32. | List out the various factors affecting biogas generation. | CO1 | 5 |

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| **PART – C (2 X 15 = 30 MARKS)**  **(Answer any 2 from the following)** | | | | |
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| 33. | a. | Elucidate current prospects in the field of renewable energy generation in India. | CO2 | 7 |
| b. | Examine the working of standalone solar PV power plant. | CO3 | 8 |
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| 34. | a. | Design the major blocks in wind energy conversion system. | CO3 | 8 |
| b. | Analyze the working of a wind power plant. | CO3 | 7 |
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| 35. | a. | Illustrate the working of a bio gas plant. | CO1 | 8 |
| b. | Identify the various factors to be considered in the design of bio gas plant. | CO1 | 7 |