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



**End Semester Examination – Nov/Dec – 2017**

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| **Code :** | **14EE2032** | **Duration :** | **3hrs** |
| **Sub. Name :** | **RENEWABLE ENERGY– II** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Explicate the process of photosynthesis. How much energy is stored through this process? In what range of spectrum is solar light photosynthesis most marked? | CO1 | 10 |
| b. | Discuss the different biomass energy resources and give the energy yield from each of them. | CO1 | 10 |
| (OR) | | | | |
| 2. | a. | With the help of a neat diagram, explain the working of updraft Gasifier using wood-chip biomass. | CO1 | 10 |
| b. | Elucidate the process of production of biogas from biomass and also list down the main advantages of anaerobic digestion of biomass. | CO1 | 10 |
| 3. | a. | With help of neat diagram, explain the floating drum and fixed dome biogas plants. Give the comparison between floating drum biogas plants and fixed dome biogas plants. | CO1 | 15 |
|  | b. | Discuss the materials used and site selection for constructing the biogas plants. | CO1 | 5 |
| (OR) | | | | |
| 4. | a. | Describe the hydrolysis process in the production of hydrogen with necessary diagram and equations. | CO2 | 10 |
|  | b. | Elucidate the natural gas steam reforming process for production of hydrogen. | CO2 | 10 |
| 5. | a. | With help of neat diagram, explicate the metal hydride hydrogen storage system. | CO2 | 10 |
|  | b. | With neat diagram, elucidate the Alkaline Fuel Cell (AFC) with necessary equations. | CO2 | 10 |
| (OR) | | | | |
| 6. | a. | With neat diagram, elucidate the Polymer Electrolyte Membrane Fuel Cell (PEMAFC) with necessary equations. | CO2 | 10 |
|  | b. | Derive the expression for fuel cell efficiency with help of thermodynamics laws. | CO2 | 10 |
| 7. | a. | With neat diagram, explicate the layout of small hydro power plant. | CO1 | 10 |
|  | b. | With neat diagram, explain the Vapour-Dominated (Dry Steam) system in geothermal resources. | CO2 | 10 |
| (OR) | | | | |
| 8. |  | With neat diagram, explain the Liquid-Dominated (Wet Steam) system in geothermal resources. | CO2 | 20 |
|  | | **Compulsory**: |  |  |
| 9. | a. | With neat diagrams explain the ocean thermal energy conversion technology. | CO2 | 10 |
|  | b. | Derive the expression for finding the energy content and energy extraction in hot dry rock resources of geothermal resources. | CO2 | 10 |

ALL THE BEST