**TU/ CDOE**

**TEZPUR UNIVERSITY**

**SEMESTER END EXAMINATION AUT 21 & SPR 22**

**DRE 105: NEW ENERGY RESOURCES**

Time:**3 Hours** Total Marks:**70**

*The figures in the right-hand margin indicate marks for the individual question.*

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Q.1. Fill in the blanks with appropriate answer(s). **1 × 5 = 5**

1. As an energy conservation measure, compact fluorescent lamp can be used to replace \_\_\_\_\_\_\_\_\_\_\_\_.
2. The country having highest share of coal reserves in the world is \_\_\_\_\_\_\_\_\_\_\_.
3. Solar radiation received in the upper atmosphere of the earth is about \_\_\_\_\_\_\_ kW/m2.
4. Three basic energy conversion systems used to harvest ocean energy are (i) \_\_\_\_\_\_\_\_\_\_\_\_, (ii) \_\_\_\_\_\_\_\_\_\_\_\_ and (iii) \_\_\_\_\_\_\_\_\_ conversion systems.
5. Palm oil is a major source of \_\_\_\_\_\_\_\_\_\_ (Bio-ethanol/ Biodiesel).

Q.2. Briefly explain the following abbreviations: **2 × 5 = 10**

(a) UNFCCC, (b) Mtoe, (c) COP, (d) HHV, (e) OTEC

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| Q.3. | How will categorize renewable and non-renewable energy sources? Illustrate the role of renewable energy sources in the context of current energy scenario. | |
|  |  | **4 + 6 = 10** |
| Q.4. | Highlight the distinctive features of hydrogen as a fuel for fulfilling energy need. Present an overview on hydrogen production and storage. | |
|  |  | **4 + 6 = 10** |
| Q.5. | Discuss the need of energy storage device. Give a comparative account on different types of modern energy storage devices with reference to their constructional and operational features. | |
|  |  | **4 + 6 = 10** |

Q.6. Briefly explain the following, citing examples wherever necessary. **5 x 5 = 25**

1. Principle of MHD power generation
2. Primary and secondary batteries
3. Clean development mechanism
4. Geothermal resources
5. Biofouling with reference to ocean energy conversion system

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