**TU/CDOE**

**TEZPUR UNIVERSITY**

**SEMESTER END EXAMINATION (SPRING) 2021**

**DRE 105: NEW ENERGY RESOURCES**

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

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

*----------------------------------------------------------------------------------------------------*

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

1. Overall efficiency of power production using geothermal energy is around \_\_\_\_\_\_\_\_\_\_ %.
2. The energy density of ocean wave is expressed in \_\_\_\_.
3. The phosphoric acid fuel cell can also be referred as the\_\_\_\_\_ generation of fuel cells.
4. For harnessing tidal power, minimum average tidal range required is \_\_\_ to \_\_\_ metre.
5. Natural gas is a \_\_\_\_\_\_\_ (primary/ secondary) source of energy.

2. State True or False for the following statements and correct the false

statement(s), if any: 2×5= 10

1. Major source of biodiesel is cereal based crops.
2. Potable water can be a secondary benefit of OTEC system.
3. SMES can store only the reactive power from the power supply or distribution grid.
4. The SI unit of energy is Calorie**.**
5. Hydrogen liquefies at a temperature of - 253 oK.

|  |  |
| --- | --- |
| 3. | Mention the critical factors to be considered for assessing viability of an ocean thermal energy conversion system. Briefly explain the working principles of different types of ocean thermal energy conversion system.  3+7= 10 |
| 4. | Explain global warming and its implications. Also, suggest some corrective measures for mitigating adverse effect of global warming. 6+4=10 |
| 5. | Mention major components of a tidal power plant. Describe different types of tidal power plant highlighting their features.  3+7= 10 |

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6. Explain the following, citing examples wherever necessary: 5×5= 25

1. Primary and secondary air pollutant
2. Hydrogen transportation
3. Applications of fuel cell
4. Super capacitor energy storage device
5. Wave power estimation

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