

**CERTIFICATE IN ENERGY
TECHNOLOGY AND MANAGEMENT
(CETM)**

Term-End Examination

June, 2023

**OEY-001 : ENERGY RESOURCES AND
CONVERSION PROCESSES**

Time : 3 Hours

Maximum Marks : 70

***Note :** Answer any **seven** questions. All questions carry equal marks. Use of scientific calculator is permitted.*

1. Define the following : 5×2=10
- (a) Reactive power
 - (b) Energy efficiency
 - (c) Greenhouse effect
 - (d) Hydraulic retention time
 - (e) Calorific value

2. How is coal classified ? Discuss in detail the characteristics of lignite and anthracite. 10
3. Name and discuss in detail any *two* process parameters that affect biogas production. 10
4. One thousand kg of coal is burned in a thermal power station to generate electricity. Determine the kWh produced if the efficiency of the conversion is 30%. The calorific value of the coal is 17000 kJ/kg. 10
5. Explain the horizontal and vertical axis wind turbines with neat sketches. 10
6. Discuss, in detail, the advantages of liquid and gaseous fuels over solid fuels. 10
7. Enumerate the advantages and disadvantages of nuclear energy. Also bring out the difference between nuclear fission and fusion reactions. 10

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8. Explain the principle and applications of geothermal energy. 10
9. Write short notes on the following : 5 each
- (a) Animal power
 - (b) Solar energy