CETM- 2020

ASSIGNMENTBOOKLET

CERTIFICATE IN ENERGY TECHNOLOGY AND MANAGEMENT (CETM)

Last date for submission:

30th April for January session
30th September for July session

School of Engineering and Technology
Indira Gandhi National Open University
MaidanGarhi, New Delhi-110068

Dear Student,

We advise you to go through your programme guide carefully and read the section pertaining to assignments. A weightage of 30 per cent, as you are aware, has been earmarked for continuous evaluation which would consist of **one tutor-marked assignment** for each of OEY 001, OEY 002 and OEY 003 of this course. You have to score a minimum of 40 marks out of 100 marks in each of the assignments. **Submit your assignment response at your Study Centre.**

A feedback form is enclosed with this assignment. Please complete it after solving this assignment and send it to the Course Coordinator (CETM) on the address specified on the feedback form.

Instructions for Formatting Your Assignments

Before attempting the assignment please read the following instructions carefully.

1) On top of the first page of your TMA answer sheet, please write the details exactly in the following format:

ENROLMENT NO: ……

NAME: ……

ADDRESS: ……

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COURSE CODE: ……..

COURSE TITLE: ……..

ASSIGNMENT NO.: ……..…

STUDY CENTRE: ……...….. **DATE:** ……..……...

PLEASE FOLLOW THE ABOVE FORMAT STRICTLY TO FACILITATE EVALUATION AND TO AVOID DELAY.

2) Use only foolscap size writing paper (but not of very thin variety) for writing your answers.

3) Leave 4 cm margin on the left, top and bottom of your answer sheet.

4) Your answers should be precise.

5) While solving problems, clearly indicate the question number along with the part being solved. Be precise. Recheck your work before submitting it.

Answer sheets received after the due date shall not be accepted.

We strongly feel that you should retain a copy of your assignment response to avoid any unforeseen situation and append, if possible, a photocopy of this booklet with your response.

We wish you good luck.

Assignment -1
(To be done **after** studying the course material)

Course Code: OEY 001
Assignment Code: OEY-001/TMA/2019
Maximum Marks: 100

Note:

1. In any question, whenever we ask you to suggest an activity we expect you to give one other than those covered in the units.

2. For any question worth 5 marks the word limit is 200 words, for a 10 mark question it is 350 words, and for a 15 mark question it is 500 words.

3. All questions are compulsory. All questions carry equal marks.

Q.1. Describe in detail, the scope of coal and oil as an energy source.

Q.2. Describe in detail the various process parameters that effect biomass production.

Q.3. Describe in detail, any three conventional energy resources.

Q.4. Discuss, in detail the various active and passive applications of solar energy.

Q.5. Explain, in detail the operation and maintenance of a biogas plant

Q.6. Explain the principle and operation of a hydrogen fuel cell.

Q.7. Name some biofuels and explain the 1st and 2nd generation bio-fuels.

Q.8.Discuss, in detail the characteristics of lignite and anthracite.

Q.9. What is greenhouse effect ? Explain the major contributors which cause this effect.

Q.10. Write short notes on the following:

a) Wind energy

b) Tidal energy

Assignment
(To be done **after** studying the course material)

Course Code: OEY 002
Assignment Code: OEY-002/TMA/2020
Maximum Marks: 100

Note:

1. In any question, whenever we ask you to suggest an activity we expect you to give one other than those covered in the units.

2. For any question worth 5 marks the word limit is 200 words, for a 10 mark question it is 350 words, and for a 15 mark question it is 500 words.

3. The marks of each question are indicated against it.

Q 1. **(a)** Sate the Kirchoff's Law of radiation and explain the main features of Solar radiation. 10

(b) Explain the principles and working of solar air heaters .Also, compare it with electric heater in terms of advantages and disadvantages. 10

Q.2 **(a)** Explain the principles and working of solar cooker.

Why do we use glass covers in solar cooker ? 10

(b) Draw and explain current –voltage (I-V) characteristics of a solar cell.

What are the causes of low electrical efficiency of solar cell? 10

Q.3 **E**xplain construction and working of Janta Fixed Dome Biogas plant.

Also explain how biogas can be utilized. 10

Q.4. (a) Explain the following:

(i) Direct gain (ii) Solar time (iii) Indirect gain (iv) Latitude (4*2.5=10)

(b) Classified the different categories of solar building system and also explain

main features of three main types of buildings. 10

Q. 5. (a) Explain and compare the various techniques used in drying system. 10

(b) Explain construction and working of solar dryer with neat schematic and

explain its different component. 10

Assignment
(To be done **after** studying the course material)

Course Code: OEY 003
Assignment Code: OEY-003/TMA/2020
Maximum Marks: 100

Note:

1. In any question, whenever we ask you to suggest an activity we expect you to give one other than those covered in the units.

2. For any question worth 5 marks the word limit is 200 words, for a 10 mark question it is 350 words, and for a 15 mark question it is 500 words.

3. The marks of each question are indicated against it.

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1. Explain the principles of Energy management in detail. 10

2. (a)Explain the utility and features of the device that are used to measure temperature. 5

(b)Explain the working principle of manometers. 5

3. Discuss the energy efficient devices that could be used in home. 10

4. Classify the energy conservation measures applicable in power plants. 10

5. Compare the cost analysis of biogas plant and a solar PV system for 1 MW power generation.

Write their advantages and limitations also. 10

6. . Explain all types of energy balance with suitable example. 10

7.How the energy could be conserved by adopting good housekeeping measures? 10

8. Write short notes on the following: 6× 5= 30

(a) Animal power

(b) Future worth method

(c) Hybrid energy systems

(d) Detailed energy audit

(e)Waste Heat recovery

(f) Evaporative cooling