

Unit 3 - Week 1 - Introduction

Course outline
How does an NPTEL online course work?
Practice Assignment
Week 1 - Introduction
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Assignment 1

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2020-02-12, 23:59 IST.

1) Which of these is a primary energy source? 1 point

- Coal
 Oil
 Electricity
 Geothermal energy

No, the answer is incorrect.
Score: 0

Accepted Answers:
Coal
Oil
Geothermal energy

2) A coal power plant operates at an efficiency of 65 %. It uses coal which is mined with an efficiency of 70 %. The electricity generated from this plant is routed through a transmission and distribution system which has losses of 25 %. This electricity is used to run a motor which is 70 % efficient. What proportion of the original energy is obtained at the motor output? (Round the answer off to the nearest integral percentage value)

Hint

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 23,24

1 point

3) Which of the following is an energy service? 1 point

- Space heated
 Lighting
 Food cooked
 All of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
Space heated
Food cooked

4) How many Quad BTU are contained in 20,00,000 Mtoe? (Answer correct to 4 decimal places)

Hint

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 76126.0000,79621.0000

1 point

5) How much natural gas (in kg) would be needed to generate 3000 kWh of energy if it is combusted in an IC engine which is 60 % efficient? The calorific value of natural gas is 12500 kcal/kg.

Hint

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 344,345

1 point

6) The proportion of hydroelectricity in the Indian energy mix of 2020 is more than that in the energy mix of 1980.

- True
 False

No, the answer is incorrect.
Score: 0

Accepted Answers:
False

1 point

7) The annual sales of heavy electric vehicles in USA have increased from 20287 in 2001 to 495330 in 2013. Calculate the compound annual growth rate for these sales.

Hint

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 30.25 ,30.75

1 point

8) If the population of a country shows a trend of the form $P(t) = A + BT + CT^2$, can the energy use in this country be sustained with time?

- Yes
 No

No, the answer is incorrect.
Score: 0

Accepted Answers:
No

1 point

9) A 250 MW power plant using a combined gas turbine cycle has an efficiency of 40 %. Assume that the fuel used is methane (CH₄) with a calorific value of 50 MJ/kg. Calculate the emission factor in kg CO₂/kWh for this plant, correct to 3 decimal places.

Hint

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 0.49,0.5

1 point

10) Diesel generators are commonly used as a backup power supply. In 2018, a diesel engine generator was operated for a total of 800 hours with a total electricity generation of 12000 kWh. The diesel engine generation efficiency is 35 %. The fuel used is light diesel oil (LDO) with a calorific value of 41 MJ/kg and Rs. 50/kg. What is the amount of LDO used by the DG Set? Round off to the closest integer.

Hint

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 3010,3011

1 point

11) Diesel generators are commonly used as a backup power supply. In 2018, a diesel engine generator was operated for a total of 800 hours with a total electricity generation of 12000 kWh. The diesel engine generation efficiency is 35 %. The fuel used is light diesel oil (LDO) with a calorific value of 41 MJ/kg and Rs. 50/kg. What is the annual fuel cost? Round off to the closest integer.

Hint

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 150500,150550

1 point

12) Diesel generators are commonly used as a backup power supply. In 2018, a diesel engine generator was operated for a total of 800 hours with a total electricity generation of 12000 kWh. The diesel engine generation efficiency is 35 %. The fuel used is light diesel oil (LDO) with a calorific value of 41 MJ/kg and Rs. 50/kg. What is the annual amount of emissions attributed to the used of the DG Set? Round off to the closest integer.

Hint

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 11037,11040

1 point

13) The Human Disruption Index for carbon dioxide is 0.05. This statement is

- True
 False

No, the answer is incorrect.
Score: 0

Accepted Answers:
False

1 point

14) The carbon dioxide emission factor of a thermal power plant will remain the same, even if the energy efficiency is increased.

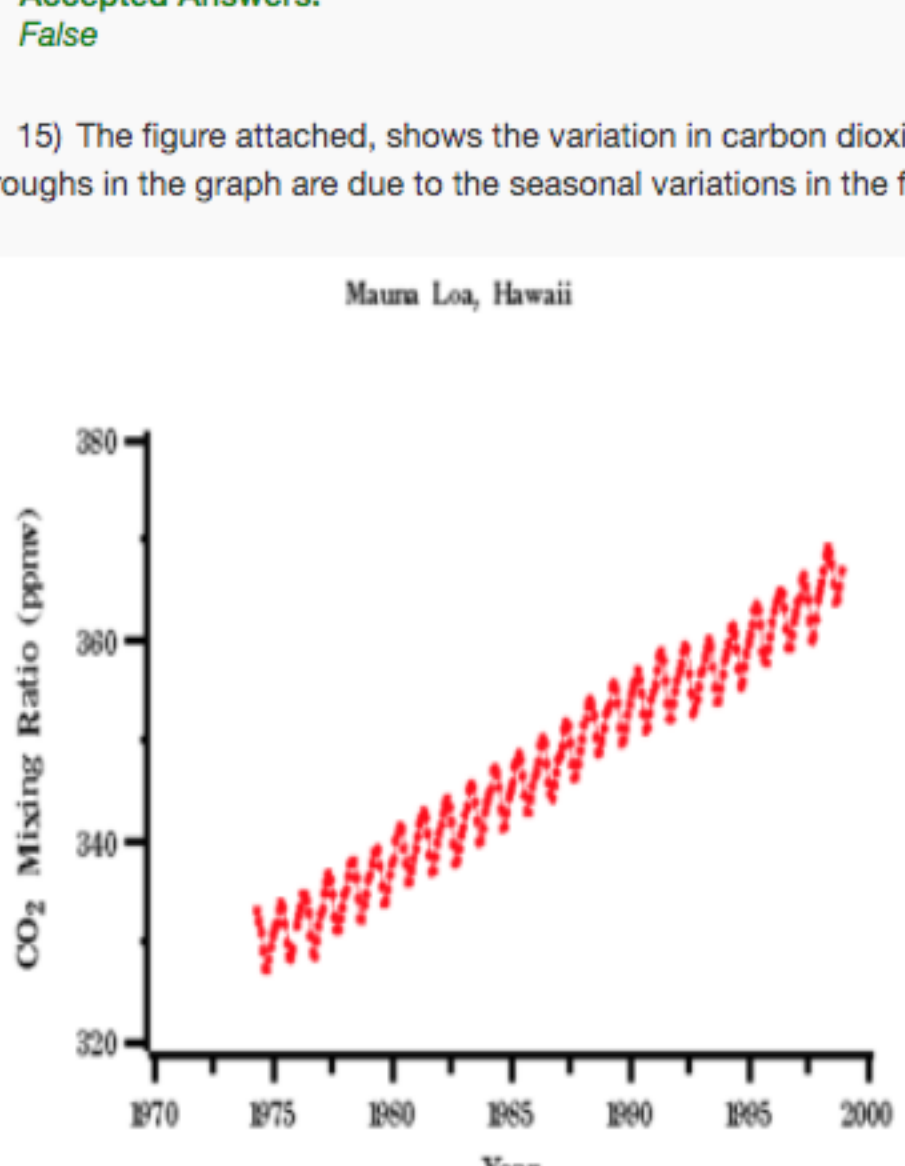
- True
 False

No, the answer is incorrect.
Score: 0

Accepted Answers:
False

1 point

15) The figure attached, shows the variation in carbon dioxide concentrations in the atmosphere as per the Mauna Loa observatory. The crests and troughs in the graph are due to the seasonal variations in the forest cover.



- True
 False

No, the answer is incorrect.
Score: 0

Accepted Answers:
True

1 point

Country	Population (million)	Primary Energy Supply (EJ)	GDP (PPP) [Billion USD]	Total CO ₂ emissions (million tonnes)
India	1324	36	7905	2077
Hong Kong	7	0.63	391	42

The table shows the data for overall statistics for Indian and Hong Kong for 2016.

Which of these countries has a higher carbon intensity?

- India
 Hong Kong

No, the answer is incorrect.
Score: 0

Accepted Answers:
Hong Kong

1 point

Country	Population (million)	Primary Energy Supply (EJ)	GDP (PPP) [Billion USD]	Total CO ₂ emissions (million tonnes)
India	1324	36	7905	2077
Hong Kong	7	0.63	391	42

The table shows the overall statistical data for India and Hong Kong for 2016.

Which of these countries has a lower energy intensity?

- India
 Hong Kong

No, the answer is incorrect.
Score: 0

Accepted Answers:
Hong Kong