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NPTEL (<https://swayam.gov.in/explorer?ncCode=NPTEL>) » Energy Resources, Economics and Environment (course)



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## Course outline

About NPTEL  
( )

How does an  
NPTEL online  
course work?  
( )

Week 1 -  
Introduction  
( )

Week 2 -  
Energy and  
quality of life,  
( )

# Week 4 : Assignment 4

The due date for submitting this assignment has passed.

Due on 2025-02-19, 23:59 IST.

Assignment submitted on 2025-02-18, 21:49 IST

1) Which of the following statements is incorrect?

1 point

- ☐ All accumulations classified as reserves can be extracted profitably under current economic conditions.
- ☒ All accumulations classified as resources can be extracted profitably under current economic conditions.
- ☐ All accumulations classified as reserves are also resources.
- ☐ Some accumulations classified as resources are also reserves.

Yes, the answer is correct.

Score: 1

Accepted Answers:

*All accumulations classified as resources can be extracted profitably under current economic conditions.*

2) Which of the following is a correctly matched set, when it comes to natural resource categorization? **1.5 points**

- ☐ Coal - Stock, Wind - Stock, Minerals - Flow, Biomass – Stock
- ☐ Coal - Flow, Wind - Stock, Minerals - Stock, Biomass – Stock
- ☐ Coal - Stock, Wind - Stock, Solar radiation - Flow, Biomass – Stock

[Renewables and Non-Renewables](#)

## Country energy balance ()

### Week 3 - Energy Economics ()

### Week 4 - Energy Resources ()

● Lecture 7A: Energy resources- Part 1 (unit? unit=50&lesson=51)

● Lecture 7B: Energy resources- Part 2 (unit? unit=50&lesson=52)

● Lecture 8A: Renewable Energy Sources- Part 1 (unit? unit=50&lesson=53)

● Lecture 8B: Renewable Energy Sources- Part 2 (unit? unit=50&lesson=54)

● Resource Model Tutorial (unit? unit=50&lesson=55)

● Weekly Feedback (unit? unit=50&lesson=58)

- ☐ Coal - Stock, Wind - Flow, Solar radiation - Stock, Biomass – Stock
- ☒ Ores - Stock, Wind - Flow, Solar radiation - Flow, Biomass - Stock

Yes, the answer is correct.

Score: 1.5

Accepted Answers:

*Ores - Stock, Wind - Flow, Solar radiation - Flow, Biomass - Stock*

3) Typically, which of the following is true?

**1 point**

- ☒ Non-renewable resources are considered as stocks whereas renewable resources are considered as flows.
- ☐ Non-renewable resources are considered as flows whereas renewable resources are considered as stocks.
- ☐ Both renewable and non-renewable resources are considered as stocks.
- ☐ Both renewable and non-renewable resources are considered as flows.

Yes, the answer is correct.

Score: 1

Accepted Answers:

*Non-renewable resources are considered as stocks whereas renewable resources are considered as flows.*

4) If one goes from 30 m above the ground to 120 m above the ground, the wind speed,  $v$  is will typically: **1 point**

- ☐ Reduce to one third
- ☐ Triple
- ☒ Increase, but less than to its double
- ☐ Decrease, but more than to its half

Yes, the answer is correct.

Score: 1

Accepted Answers:

*Increase, but less than to its double*

5) For a country with oil reserves of 8000 million tonnes and an annual production of 400 million tonnes in 2024, calculate the static R/P ratio.

19

No, the answer is incorrect.

Score: 0

Accepted Answers:

*(Type: Numeric) 20.0*

**1 point**

6) Assuming that there is no other change in physical and chemical composition, the energy content (in MJ/kg) of biomass reduces with: **1 point**

- ☐ An increase in ash content and decrease in moisture

● Quiz: Week 4 :  
Assignment 4  
(assessment?  
name=209)

Week 5 - Non-  
Renewable  
Resource  
Economics ()

Week 6 -  
Preferences,  
Utility and  
Social  
choices ()

Week 7 -  
Public and  
private  
goods,  
Externalities  
()

Week 8 -  
Energy and  
Financing ()

Week 9 -  
Input-Output  
Analysis ()

Text  
Transcripts ()

Books ()

Download  
Videos ()

- ☐ A decrease in ash content and increase in moisture
- ☒ An increase in ash content as well as moisture
- ☐ A decrease in ash content as well as moisture

Yes, the answer is correct.

Score: 1

Accepted Answers:

*An increase in ash content as well as moisture*

7) Which of the following come under thermochemical conversion routes of biomass?

**1 point**

- ☒ Gasification
- ☐ Digestion
- ☐ Fermentation
- ☒ Pyrolysis

Yes, the answer is correct.

Score: 1

Accepted Answers:

*Gasification*

*Pyrolysis*

8) The CAGR of coal production in India from 1970-2024 was 5.25 %. In 1970 the coal production was 70 million Tonnes. Calculate the coal production (in million Tonnes) in 2024.

1109.41

Yes, the answer is correct.

Score: 1

Accepted Answers:

*(Type: Range) 1100,1130*

**1 point**

9) The Pearl curve is a popular model for studying and predicting stocks of fossil fuel reserves. It can analytically be expressed as **1.5 points**

where  $Q_p$  is the cumulative production till year  $t$ ,  $Q_\infty$  is the total proven reserve and  $A$  and  $b$  are model parameters. The analytical expression for the maximum annual production is:

- ☐  $\ln A/b$
- ☐  $(AQ_\infty)/b$
- ☐  $Q_\infty/(1+Ae^{-b})^2$
- ☒  $(bQ_\infty)/4$

Yes, the answer is correct.

Score: 1.5

Accepted Answers:

*$(bQ_\infty)/4$*

