X

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

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.

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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

- 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***

- [x] Gasification
- [ ] Digestion
- [ ] Fermentation
- [x] 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_∞ 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:
$(bQ_\infty)/4$