Unit 3 - Week 2

Course outline

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Week 1

Week 2

- Hydrogen Energy: Introduction & Hydrogen Production from Fossil Fuels and Biomass
- Hydrogen Production from Thermochemical Process
- Hydrogen Production from Electrolysis
- Photo-electrochemical Production of Hydrogen Using Solar Energy
- Hydrogen Production from Biological Process
- Quiz : Assignment 2
- Solutions for Assignment 2

Week 3

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Assignment 2

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

Due on 2019-08-21, 23:59 IST.

1) Hydrogen fuel can be available in liquid form under _____ temperature *1 point*

- +253 °C
- -253 °C
- -253 K
- -253 °F

No, the answer is incorrect.
Score: 0
Accepted Answers:
-253 °C

2) In biomass gasification, particulate matter is removed by _____ *1 point*

- Syngas cooling co-shift
- Regenerator
- Cyclones and scrubbers
- Sequestration

No, the answer is incorrect.
Score: 0
Accepted Answers:
Cyclones and scrubbers

3) What is the abbreviation of PSA in hydrogen gas generation? *1 point*

- Pressure Swing Adsorption
- Pressure Short Adsorption
- Pressure Swing Arrangement
- Pressure Swift arrangement

No, the answer is incorrect.
Score: 0
Accepted Answers:
Pressure Swing Adsorption

4) Which of the following source/s is/are used to generate high temperature required for thermochemical water splitting process of hydrogen generation? *1 point*

- Concentrated solar power
- Waste heat of nuclear power reactions
- Chemical reactions
- All of these

No, the answer is incorrect.
Score: 0
Accepted Answers:
All of these

5) Oxygen and steam removal from Sulfuric acid decomposition reactants in S-I cycle leads to? *1 point*

- Increase sulfuric acid conversion efficiency
- Decrease sulfuric acid conversion efficiency
- More energy consumption than distillation
- Decrease HI conversion efficiency

No, the answer is incorrect.
Score: 0
Accepted Answers:
Increase sulfuric acid conversion efficiency

6) Among the following, which is the oxygen evolution reaction in alkaline electrolysis? *1 point*

- $H_2O \rightarrow \frac{1}{2}O_2 + 2H^+ + 2e^-$
- $O^{2-} \rightarrow \frac{1}{2}O_2 + 2e^-$
- $2OH^- \rightarrow \frac{1}{2}O_2 + H_2O + 2e^-$
- $H_2O + 2e^- \rightarrow H_2 + 2OH^-$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$2OH^- \rightarrow \frac{1}{2}O_2 + H_2O + 2e^-$

7) Cathode reaction taking place in membrane electrolysis is _____ *1 point*

- $H_2O + 2e^- \rightarrow H_2 + 2OH^-$
- $H_2O + 2e^- \rightarrow H_2 + O^{2-}$
- $H_2O \rightarrow \frac{1}{2}O_2 + 2H^+ + 2e^-$
- $2H^+ + 2e^- \rightarrow H_2$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$2H^+ + 2e^- \rightarrow H_2$

8) Select the correct statement regarding the selection of electrode materials for photo-electrochemical water splitting? *1 point*

- Photo-anode made of n-type semiconductor and cathode made of metal
- Photo-anode made of n-type semiconductor and photo-cathode made of p-type semiconductor
- Photo-cathode made of p-type semiconductor and anode made of metal
- All of these

No, the answer is incorrect.
Score: 0
Accepted Answers:
All of these

9) Match the following the name of the microorganisms in section 'A' with their corresponding type of microorganisms in section 'B' *1 point*

Section 'A'	Section 'B'
1. Sceaedesmus obliquus	A. Cyanobacteria
2. Nostoc muscorum	B. Fermentative bacteria
3. Rhodobacter sphaeroides	C. Green algae
4. E. cloacae	D. Photosynthetic bacteria

- 1-C, 2-A, 3-D, 4-B
- 1-A, 2-C, 3-B, 4-D
- 1-D, 2-A, 3-C, 4-B
- 1-B, 2-D, 3-C, 4-A

No, the answer is incorrect.
Score: 0
Accepted Answers:
1-C, 2-A, 3-D, 4-B

10) Photolysis of six water molecules results in *1 point*

- 6 atoms of hydrogen
- 12 atoms of hydrogen
- 18 atoms of hydrogen
- 24 atoms of hydrogen

No, the answer is incorrect.
Score: 0
Accepted Answers:
12 atoms of hydrogen