

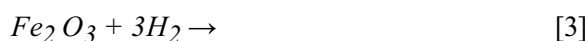
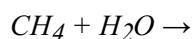
End Semester Examinations - 2015-16 Even Semester - May 2016

14EE3015 Hydrogen and Fuel Cells

Set A

Time : 3 hrs
Total Marks: 100

1. a) Complete the following equations



- b) Distinguish between Fuel cell and Electrolysis cell. [7]

- c) Discuss about the photo biological methods for producing clean and green hydrogen with suitable diagrams. [10]

OR

2. a) Discuss about the physical and chemical properties of hydrogen [5]

- b) Explain Steam Methane Reforming process [10]

- c) Outline the main benefits of hydrogen fuel cell [5]

3. With a neat diagram, explain the hydrogen production by gasification process and summarize the environmental advantages. [20]

OR

4. a) Compare different types of hydrogen storage systems [15]

- b) Suggest and explain the advantages of a system based on hydrogen fuel cells rather than a system based on batteries [5]

5. a) Write notes on thermodynamic analysis of a fuel cell [15]

- b) Classify fuel cells based on the electrolyte used. [5]

OR

6. a) Recommend any two fuel cells suitable for cogeneration applications and also discuss about the fuel cells usage for domestic applications. [10]

- b) List the merits and demerits of Microbial fuel cell and explain how it converts bio-waste in to electricity with a neat diagram. [10]

7. Write notes on

1. Hydrogen transmission system [14]
2. Solid oxide fuel cells [6]

OR

8. a) Is it safe to carry hydrogen on a vehicle? Justify. [5]

- b) Discriminate MCFC and PEMFC [10]

c) Mention the industrial uses of Hydrogen

[5]

- 9.
- a) Describe two problems which make it necessary to research an alternative to fossil fuels for powering vehicles. For each explain how hydrogen would solve the problem[6]
 - b) Discuss about the economic and environmental analysis on usage of Hydrogen and Fuel cell[14]

Wishing you All the Best
