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Roll No

CM-6005(2)-CBGS

B.E. VI Semester

Examination, June 2020

Choice Based Grading System (CBGS)

Fuel Cell Technology

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.

ii) All questions carry equal marks.

1. a) Explain the difference between ordinary batteries and fuel cell.
b) Explain the Faraday's law of electrolysis.
2. a) Explain the thermodynamics steps involved in fuel cell.
b) Discuss the operating temperature of different types of fuel cell and limitations arising of out of that.
3. a) Explain the salient features of the storage of hydrogen as fuel for fuel cell.
b) Explain the Gibbs free energy formation in electro chemical fuel cell.
4. a) Explain osmotic drag coefficient and back diffusion flux.
b) Explain design considerations and explain stack design.

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5. Develop a mathematical model for SOFC system using methane as fuel. The system is divided in three subsystems.
 - a) Fuel processing
 - b) Fuel cell
 - c) Post combustion

6. Explain efficiency and power due to entropy change and internal ohmic heating.

7. Discuss the technologies for hydrogen production.

8. Write a short note on followings: (any three)
 - a) EMF of cell
 - b) Nernst Plank equation
 - c) Cottrell equation
 - d) General issues fossil fuels and other fuels.

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