

Roll No.: .....

## SGT UNIVERSITY

### END TERM THEORY EXAMINATION JULY-2022

Faculty/College of Study:	Engineering & Technology	Year/Semester:	6 <sup>th</sup> Semester
Program:	B.Tech. (ME)	Duration:	03:00 Hrs.
Course/Subject:	Hydrogen and Fuel Cells	Maximum Marks:	60
Course/Subject Code:	13030605	Batch:	2019

**Instructions:-**

1. Write Your Roll No. on the Question Paper.
2. Candidate should ensure that they have been provided correct question paper. Complaint(s) in this regard, if any should be made within 15 minutes of the commencement of the exam. No complaint(s) will be entertained thereafter.
3. All Questions are compulsory. Marks are indicated against each question.
4. Illustrate your answer with diagram wherever required.

### SECTION-A

#### (Very Short Answer Type Questions)

**Note: All Questions are compulsory: -**

**[12X1=12 Marks]**

S. No.	Question	Marks Allotted
1	What is fuel cell process?	1
2	What is hydrogen utilization?	1
3	Define metal hybrid storage.	1
4	What is transition management?	1
5	What is thermal reforming?	1
6	Define Hydrogen Energy System.	1
7	What are the current uses of Hydrogen path ways?	1
8	Why is Hydrogen hazardous as fuel?	1
9	What is the most efficient way to store Hydrogen?	1
10	What is anaerobic digestion of biological waste?	1
11	What is AFC in fuel cells?	1
12	What is SOFC in fuel cells?	1

**SECTION-B**  
**(Short Answer Type Questions)**

**Note: All Questions are compulsory: -**

**[4X2=8 Marks]**

S. No.	Question	Marks Allotted
13	What are the different types of steam reforming methods?	2
14	How does a photochemical cell work?	2
15	What is the utilization of hydrogen in power plants?	2
16	Explain different types of fuel cells.	2

**SECTION-C**  
**(Descriptive Answer Type Questions)**

**Note: All Questions are compulsory: -**

**[4X4=16 Marks]**

S. No.	Question	Marks Allotted
17	State the different properties of Hydrogen as a fuel. Describe each and every property with a suitable example.	4
18	What are the major problems for using Hydrogen for energy storage? Explain in brief.	4
19	How can gaseous hydrogen be stored in composite tanks?	4
20	Explain cryogenic liquid hydrogen.	4

**SECTION-D**  
**(Long Answer Type Questions)**

**Note: All Questions are compulsory: -**

**[4X6=24 Marks]**

<b>S. No.</b>	<b>Question</b>	<b>Marks Allotted</b>
21	What problems are there with using Hydrogen on a massive scale? Why Hydrogen is the best resource of energy?	6
22	What microorganisms are used in fermentation? What is the role of microorganisms in fermentation?	6
23	Describe the principles of working of a fuel cell and the classification of fuel cells.	6
24	Describe the theory of photo-catalytic detoxification.	6