1T00836 - T.E.(Electrical Engineering)(SEM-VI)(Choice Base Credit Grading System ) (R- 19) ('C' Scheme) / 89308 - Energy Storage (DLOC)

QP CODE: 10038265 DATE: 20/12/2023

**Duration: 3hrs** **[Max Marks: 80]**

**N.B. : (1) Question No 1 is Compulsory.**
**(2) Attempt any three questions out of the remaining five.**
**(3) All questions carry equal marks.**
**(4) Assume suitable data, if required and state it clearly.**

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| 1 | | **Attempt any FOUR** | [20] |
| | a | Define Electrical Energy Storage | |
| | b | Compare battery with fuel cell. | |
| | c | Compare the characteristics of supercapacitor with battery. | |
| | d | Elaborate advantages and limitations of Flywheel system. | |
| | e | What is PCM in mechanical storage system | |
| 2 | a | Give classification of mechanical energy storage system along with appropriate examples | [10] |
| | b | Elaborate compressed air energy storage system in detail | [10] |
| 3 | a | Justify the need of energy storage in renewable energy sources system. | [10] |
| | b | Explain V2X, G2V and V2G modes of operation of Electric vehicles. | [10] |
| 4 | a | Illustrate the various design considerations for sizing of different types of energy storage systems for various applications | [10] |
| | b | Elaborate seasonal energy storage. | [10] |
| 5 | a | Elaborate Pumped Hydro storage system in detail. | [10] |
| | b | Enlist fuel cells and elaborate any one in detail | [10] |
| 6 | a | Give the significance of “electrical double layer” in supercapacitor. | [10] |
| | b | Draw Schematic of superconducting magnetic energy storage and elaborate it’s working. | [10] |

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