

(3 Hours)

[Total Marks: 80]

- N.B. : (1) Question No.1 is compulsory  
 (2) Attempt any three from the remaining  
 (3) Figures to the right indicate full marks  
 (4) Assume suitable data if necessary

- |    |     |  |    |
|----|-----|--|----|
| 1. | (a) | Explain emerging trends in batteries.  | 20 |
|    | (b) | Explain the necessity of energy storage.   |    |
|    | (c) | Explain different types of fuel cell.  |    |
|    | (d) | Write a short note on: Solar Pond.   |    |
| 2  | (a) | Write a short note on Flywheel.  | 10 |
|    | (b) | Explain in detail about latent heat storage.   | 10 |
| 3. | (a) | Explain working principle of Rechargeable battery.   | 10 |
|    | (b) | Explain in detail about design considerations for sizing of different types of energy storage systems for various applications | 10 |
| 4. | (a) | Write a short note on Superconducting magnetic energy storage (SMES).  | 10 |
|    | (b) | Explain in briefly about seasonal thermal energy storage.  | 10 |
| 5. | (a) | Explain in detail about Pumped hydro storage system.   | 10 |
|    | (b) | Write a short note on: Supercapacitors   | 10 |
| 6. | (a) | Explain in brief: Future technology in energy storage as Electric vehicle  | 10 |
|    | (b) | Explain briefly about Compressed air energy storage (CAES)   | 10 |

\*\*\*\*\*