

- Q.1. a) List various types of Fuel cells and explain any one with neat sketch. [4]
b) Can we use geothermal energy for air conditioning (heating during winter and cooling during summer)? Justify your answer with a proper explanation of such a system with a neat sketch.[4]
- Q.2. Define simple payback period, NPV, and IRR and explain how to calculate them. [6]
- Q.3. There is a village at a remote location in the cold hilly region of north India having a good cattle population. The village is surrounded by dense forest and has a beautiful waterfall (about 100 m in height) from the hilltop. People visit that village to get cured of skin diseases from hot water springs. But the problem with this village is that there is no electricity. It is not practicable to connect this village to the electric grid. Based on the information given, suggest possible solutions (with a neat sketch) for satisfying the village's electric and other energy needs. [6]
- Q.4. a) A mega tidal power plant in India was planned. If materialized, it had a capacity of more than 5 GW. Explain this tidal plant with a neat sketch, along with its location. [3]
b) State various benefits of a tidal power plant. [2]
- Q.5. List various types of wave energy conversion machines and explain anyone with a neat sketch. [3]
- Q.6. List various types of biogas plants and explain anyone with a neat sketch. [4]
- Q.7. Explain the advantages and disadvantages of wind energy system. [3]

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