

Class x physics

Exercise based on sources of energy

1. Answer question numbers (a) - (d) on the basis of your understanding of the following paragraph and the related studied concepts.

Renewable energy sources such as wind energy are vital for the Indian economy, not only from the point of view of supply, but also from the perspective of environmental and social benefits. India is the world's fifth largest wind-power producer and the largest windmill facilities in India are installed in Tamil Nadu. Muppandal is a small village of Tamil Nadu and one of the most important sites of wind-farm in the state. It uses wind from the Arabian Sea to produce renewable energy. The suitability of Muppandal as a site for wind farms stems from its geographical location as it has access to the seasonal monsoon winds.



The electrical

generators used on wind turbines in sites like Muppandal, produce an output AC of 240 V and a frequency of 50 Hz even when the wind speed is fluctuating. A transformer may be required to increase or decrease the voltage so it is compatible with the end usage, distribution or transmission voltage, depending on the type of interconnection.

- (a) write advantages and disadvantages of wind energy?
- (b) Why do you think Muppandal is at an advantageous position for this project?
- (c) Based on the data represented in the graph below, which of the two cities A or B would be an ideal location for establishing a wind-farm and why?

2. Answer the following question on the basis of your understanding of the following paragraph and the related studies concept

: The Tehri dam is the highest dam in *India and one of the highest in the world*. *The Tehri dam withholds a reservoir of capacity 4.0km^3 and surface area 52 km^2* It is used for irrigation , municipal water supply and the generation of 1000 MW of hydro electricity.

The Tehari dam has been the object of protests. Environment activist Shri sunderlal Bahuguna led the “ Anti Tehri Dam Movement” from 1980s to 2014. The protest was against the displacement of town habitants and environmental consequences of the weak ecosystem. The relocation of more than 1,00,000 people from area has led to protracted legal battles over resettlement rights and ultimately resulted in the delayed completion of the project.

- (a) Hydro energy is a renewable or nonrenewable source of energy?
- (b) Write two disadvantages of constructing Tehri Dam.
- (c) Write the energy associated with water stored in the Dam?
- (d) Write energy transformation take place in generation of electricity through hydro power plant?
- (e) Write advantages of hydro energy.