

**Q. 3 Read the following passage carefully and answer the questions that follow.**

**(20)**

The notion that renewable energy unequivocally saves the planet and eradicates pollution is a narrative as appealing as it is oversimplified. While solar panels gleaming in the sun and wind turbines spinning gracefully against a clear blue sky evoke a sense of eco-utopia, the reality of renewable energy is far from unblemished.

To begin with, the very production of renewable energy systems is a resource-intensive process that leaves a sizable environmental footprint. Solar panels, for instance, require rare earth elements like cadmium and tellurium, whose extraction involves environmentally damaging mining practices. Similarly, wind turbines demand vast quantities of steel, concrete, and rare earth magnets. Manufacturing these components not only generates significant greenhouse gas emissions but also disrupts ecosystems and exploits finite resources.

A parallel can be drawn to electric vehicles (EVs), which are often lauded for their environmentally friendly image but whose production also results in significant pollution. The manufacturing process, particularly of lithium-ion batteries, requires extensive mining of materials like lithium, cobalt, and nickel. This mining causes habitat destruction, soil contamination, and high water usage, often in regions already facing environmental stress. Additionally, if the electricity used to charge EVs comes from fossil fuels, their environmental benefits diminish significantly. Battery disposal presents further challenges, as improper recycling leads to toxic waste. While EVs have potential, their current lifecycle emissions suggest they are not a complete solution to reducing pollution.

Moreover, the issue of waste is a looming specter. Solar panels and wind turbines have finite lifespans, typically ranging from 20 to 30 years. As they reach the end of their utility, the question of disposal becomes critical. Recycling these components is neither straightforward nor widely practiced, often resulting in the accumulation of toxic waste. Without a robust infrastructure for managing this influx of discarded materials, the green promise of renewable energy begins to tarnish.

Additionally, renewable energy systems are not immune to pollution during their operational phase. The intermittent nature of solar and wind power necessitates backup from fossil fuel plants or reliance on battery storage, the

latter of which poses its own environmental challenges. Batteries rely heavily on lithium and cobalt, both of which have supply chains notorious for environmental degradation and human rights abuses.

Land use is another concern. Solar farms and wind parks require vast expanses of land, potentially displacing local wildlife and communities. Forests are often cleared to accommodate these installations, undermining their supposed environmental benefits. While renewable energy does reduce reliance on fossil fuels, it is disingenuous to ignore these associated costs.

This is not to discredit the value of renewable energy as a critical component in mitigating climate change, but rather to advocate for a balanced perspective. Blindly heralding renewables as a panacea risks complacency and overlooks the importance of improving energy efficiency, reducing consumption, and diversifying the energy mix.

In conclusion, renewable energy is not the silver bullet for saving the planet. It is a complex, imperfect solution that requires careful management and realistic expectations. Only by acknowledging its limitations can we hope to harness its potential responsibly.

**Questions:**

1. What can be inferred about the environmental impact of renewable energy production compared to traditional fossil fuels?
2. How far the electric vehicles (EVs) are environmental friendly?
3. What challenge is associated with the disposal of renewable energy systems after their lifespan ends?
4. Why does the article suggest that renewable energy is not entirely pollution-free during its operational phase?
5. How does the article propose addressing the limitations of renewable energy?

Qno1:-

Ans1:-

The environmental impact of renewable energy production is comparatively larger than traditional fossil fuels as it is a resource-intensive process. The mining of rare earth metals like cadmium and tellurium poses considerable environmental degradation, which are used to power solar panels, wind turbines and Electric vehicles (EVs).

Qno2:-

Ans2:-

Electric vehicles are considered environmental friendly because they do not rely on conventional fuels that exacerbates pollution. However, the production of EVs involves considerable pollution as lithium-ion batteries requires intense mining of cobalt, lithium and Nickel.

Qno3:-

Ans3:-

The disposal of renewable energy system is quite challenging as it requires robust infrastructure for managing influx of discarded materials and an advanced technological equipments, making it an expensive and costly process.

→ 2) 6000 million  
→ 4.9 trillion previous year

Collection is less, expenditure is more.

Ques:-

Ans:-

Renewable energy is not entirely pollution-free during its operational phase because the recycling nature of solar and wind energy requires backup from fossil fuels or any extend battery storage, posing a serious environmental concern. Moreover, batteries rely on lithium and cobalt for operation, which are highly controversial for human right abuses too.

Ques

Ans

The ~~limitations of renewable energy~~ <sup>addressal of</sup> are proposed  
The article discusses the <sup>↑</sup>limitations of renewable energy as adopting a balanced perspective when it comes to mitigating climate change — like improving energy efficiency, reducing consumption and diversifying the energy mix.