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Energy

a. Which of the following is a perpetual natural resour
i. Coal ii. Sun iii. Forest iv. LP GAS

b. What instrument converts solar energy into electrica energy?
→ i. Solar cooker ii. Solar water heater
iii. Solar cell iv. Solar reflector

c. How much solar energy per square metre per second is received by the earth?
i. 1.4KW ii. 1.4×10^4KW iii. 5780KW
iv. 46KW

d. Which of the following is best quality coal?
i. Lignite ii. Anthracite iii. Bituminous iv. Sub-bituminous

e. Which of the following can undergo fission reaction?
i. hydrogen ii. helium iii. Argon iv. Uranium

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3. Answer these questions in short

a. The sun is also called atomic power plant, why?

→ The sun is also called atomic power plant because sun produces energy through nuclear fusion, where hydrogen atoms combine to form helium releasing huge amount of energy, which is similar to atomic power plant using nuclear reactions.

b. Explain with the reasons that the hydroelectricity is the best alternative source of energy in the context of Nepal.

→ Nepal is the country with abundant water resources and mountainous terrain which is ideal for generating hydropower. Nepal has thousands of rivers with steep gradients which allows easy construction of hydroelectric projects. ~~This~~ hydroelectricity is free of pollution, renewable and supports sustainable development. So, It is best alternative source of energy.

c. Suggest any two alternative ways to prevent energy crisis in the context of Nepal.

→ The two alternative ways to prevent energy crisis in the context of Nepal are:-

a) ~~us~~ Promote use of solar energy in rural and urban areas to reduce dependency on other power source.

b) Public awareness among people to improve energy efficiency by energy saving.

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d) Why is the use of wood as a fuel not advised although forests can be replenished?

→ The use of wood as a fuel not advised although forests can be replenished because of following reasons:-

a) Deforestation Risk → Excessive use of woods for fuel leads to deforestation which takes long time to recover.

b) Environmental damage → Burning wood ~~and~~ releases smoke and harmful gases contributing to air pollution and health problems.

e) Government is giving high priority for solar energy. Why?

→ Government is giving high priority for solar energy because:-

a) Abundant and free resource → Nepal receives plenty sunlight throughout the year, which makes solar energy reliable and sustainable option.

b) Reduces dependency → It reduces dependency on fossil fuel and ease pressure on hydropower during dry seasons.

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f. wind energy is the outcome of solar energy. why?

⇒ The heat of sun causes the air of one place to be heated. the hot air being lighter rises up and vacant place is created. the cooler air from other places moves towards such empty place with greater speed. Thus wind is formed. Hence, wind energy is the outcome of solar energy.

g. Fossil fuel is known as non-renewable source of energy, why?

⇒ Fossil fuel is known as non-renewable source of energy because:-

a) Long time to replenish → Fossil fuel like coal, oil, and natural gas are formed from dead plants and animals over million of years.

b) Limited supply → once used they cannot be quickly replaced and their supply will eventually run out.

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h) Energy contained in fossil fuel is the outcome of solar energy. why?

→ plants change solar energy into chemical energy and store it in their body. Animals eat plants and form their body. when plants and animals of million years ago died and buried under the soil they were transformed into fossils. These fossils can be used as fuel. Thus energy contained in fossil fuel is the outcome of solar energy.

i) The sun is considered main source of energy. Justify the statement

→ The Sun is considered main source of energy because almost all source of energy directly or indirectly are the outcome of solar energy, Sun support natural process like photosynthesis, water cycle, wind formation, etc other energy sources such as hydropower, fossil fuel, etc are directly or indirectly outcome of sun's energy.

j) what are the main reasons of energy crisis? write any 4 reasons.

→ the Four reasons of energy crisis are as follow:

a) overuse of non-renewable resources like coal, oil and gas.
b) Limited development of renewable energy sources such as solar and wind.
c) Rapid population growth increasing energy demand.
d) Poor energy management and wastage in industries and household

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a) why should energy be conserved? mention any two steps you would take at home to conserve energy

→

Energy should be conserved to reduce overuse of limited natural resources, lower energy bills and protect the environment from pollution and climate change.

Two steps to conserve energy at home:-

1. use energy efficient bulbs and home appliances.
2. Turn off lights and electrical appliances when not in use.

b) hydroelectricity is an indirect source of solar energy.

→ The water of seas, oceans, rivers, etc. evaporates because of the heat of sun, water vapour rises up due to solar heat. water vapour converts to water or snow due to cooling in atmosphere. The water falls back to the earth surface and snow melts to the ice which gives rise to the rivers due to heat. Then the flowing water is used to produce electricity. thus hydroelectricity is the outcome of solar energy.

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m) Energy crisis cannot be solved immediately but it can be pushed up to the next generation. Give reason.

→ ~~Be~~. Energy crisis cannot be solved immediately but it can be pushed upto the next generation because:-

a) Slow development of renewable energy → Constructing/building solar, hydro and wind takes time and resource.

b) Dependence on fossil fuel → shifting away from non-renewable source of energy is gradual process.

n) The use of solar energy should be increased in the context of Nepal. Give any two reasons to justify this statement.

→ The use of solar energy should be increased in the context of Nepal because:-

a) Abundant Sunlight → Nepal receives plenty of sunlight throughout the year.

b) Suitable for remote areas → It helps to provide electricity where government electricity hasn't reached.

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a) mineral oil is a fossil fuel. How do you explain it?

→ mineral oil is formed from the remains of ancient plants and animals buried under the earth for millions of years. over time heat and pressure turned these remain into oil.

So, mineral oil is also fossil fuel.

4 A

a) Three advantages of mineral oil from breast

How is biogas produced?

→ Bio-gas is produced by the decomposition of organic waste materials like animal dung, food waste and plant remains in absence of oxygen, micro organisms break these wastes inside a biogas plant releasing a mixture of gases i.e. methane and biogas which is called bio-gas.