



PHYSICS

BOOKS - NAVNEET SCIENCE

(HINGLISH)

TOWARDS GREEN ENERGY

Can You Recall

1. What is energy?



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2. What are different types of energy?



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3. DIFFERENT FORMS OF ENERGY



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4. Where do we use electrical energy in our day-to-day life ?



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5. How Electric energy is produced?



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6. Why is the energy in the coal called chemical energy?



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7. Why steam is used to rotate the turbine?



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8. How does nuclear fission take place?



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Fill In The Blanks

1. In modern civilization,..... has become a primary need.



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2. The principle of was invented by Michael Faraday.



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3. is used to rotate the magnet in the generator.



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4. In thermal power plants, theenergy in the coal is converted into electrical energy through several steps.



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5. When neutron is bombarded on atom of Uranium-235, it absorbs the neutron and converts into its Uranium-236.



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6. Burning of coal may cause serious health problems related to system.



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7. Incomplete combustion of automobile fuel leads to formation of :



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8. Solar cells are made of a special type of material called. such as.



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True Or False

1. In thermal power plants, the turbines work on solar energy. True/false



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2. How to dispose the nuclear waste safely is a big challenge before the scientists. True/false



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3. The efficiency of power generation using coal plant is higher than that of power generation plant based on natural gas.

True/false



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4. Eenergy obtained from nuclear fission is eco-friendly. True/false



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5. In hydroelectric power plant, the kinetic energy in water stored in dam is converted into potential energy of water. True/false



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6. The turbine is connected to electric generator, therefore the magnet rotates and electric energy is thus produced. True/false



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7. Use of energy is unavoidable in our daily life, but we must use it carefully and only in the required amount. True/false



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8. The machine which converts the potential energy of wind to electrical energy is called wind-turbine. True/false



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9. The potential difference available from a solar cell is dependent on its area. State true/false.



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10. The power available from the solar cells is DC. True/False



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1. Choose the correct option

(1) Column I	Column II
(1) Polluting energy	(a) Soot particles
(2) Eco-friendly energy	(b) Thermal energy
	(c) Nuclear energy
	(d) Wind energy



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2. Match the columns

(2) Column I	Column II
(1) Pollutants	(a) Soot particles
(2) Hazard to ecosystem	(b) Thermal energy
	(c) Nuclear energy
	(d) Wind energy



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3. Choose the correct option

(3) Type of energy	Problem
(1) Nuclear energy	(a) Rehabilitation of displaced people
(2) Natural gas	(b) Rainy season and darkness
	(c) Limited reserves
	(d) Disposal of wastes



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4. Choose the correct option

(4) Type of energy	Problem
(1) Solar energy	(a) Rehabilitation of displaced people
(2) Hydroelectric energy	(b) Rainy season and darkness
	(c) Limited reserves
	(d) Disposal of wastes



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Find The Odd One Out

1. Kudankulam, Tarapur, Ravatabhata, Anjanvel.

Odd one out



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2. Samaralkota, Kudankulam, Bavanaa,
Kondapalli.

Odd one out



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3. Tehari, Koyana, Srishailam, Tarapur

Odd one out



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4. Edible oil, crude oil, LPG, CNG

Odd one out



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5. Hydroelectric energy, Solar energy, Nuclear energy, Wind energy

Odd one out



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Questiond Based On Tables

1. Remake the table taking into account relation between entries in three columns :

I	II	III
Coal	Potential energy	Wind electricity plant
Uranium	Kinetic energy	Hydroelectric plant
Water reservoir	Nuclear energy	Thermal plant
Wind	Thermal energy	Nuclear power plant



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Explain The Difference

1. Conventional and Non-conventioanl Sources of energy.



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2. Thermal electricity generation and Solar thermal electricity generation.



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Answer In One Sentence

1. As Uranium-236 is extremely unstable what reactions do take place in it at the time of nuclear fission?



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2. Why nuclear power generation can be hazardous?



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3. How is acid-rain caused?



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4. At which places natural gas based power plants are located and in which states of India?



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5. Which is a perfect site for the installation of wind turbines?



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6. What is solar cell?



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7. How is electricity produced in the solar power plant fed into the electricity distribution network?



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8. How in electrical energy generated without using the principle of electromagnetic induction?



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Explain With Diagram Step By Step Energy Conversion In

1. Thermal power plant



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2. What is a Nuclear power plant?



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3. Hydroelectric power plant



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4. What are solar thermal power plants?



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5. Power plant based on natural gas



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6. Power plant based on wind energy



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Give Scintific Reasons

1. The construction of turbine is different for different types of power plants.



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2. It is absolutely necessary to control the fission reaction in nuclear power plants. Why?



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3. Hydroelectric energy, Solar energy and Wind energy are called renewable energies.



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4. It is possible to produce energy from mW to MW using solar photovoltaic cells.



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Explain The Following Sentences

1. Eenergy obtained from fossil fuels is not green energy. Is this statement true? Justify.



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2. Is saving energy the need of the hour? Why do you think so? Quote examples to support your answer.



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Answer The Following Questions In Detail

1. Which fuel is used in thermal power plant?

What are the problems associated with this type of power generation?



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2. Other than thermal power plant, which power plants use thermal energy for power generation? In what different ways is the thermal energy obtained?



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3. What is meant by green energy? Which energy sources can be called green energy sources and why? Give examples.



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4. Give your opinion about whether hydroelectric plants are environment-friendly or not?



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5. What are the advantages of hydroelectric power generation? Also mention its disadvantage if it exists.



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6. How is nuclear fission reaction carried out in nuclear power plants?



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7. How can we get the required amount of energy by connecting solar panels?



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8. What are the advantages of solar energy?
Also mention its limitations. Explain with examples.



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9. Which type/types of power generation involve maximum number of steps of energy conversion ? In which power generation is the number minimum?



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10. Electric energy is produced in various ways like hydroelectric, wind power, solar energy, bio-fuel, etc. These energy sources are inexhaustible, sustainable. Besides, it does not

cause any environmental problem.

Above information is about which type of energy?



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11. Electric energy is produced in various ways like hydroelectric, wind power, solar energy, bio-fuel, etc. These energy sources are inexhaustible, sustainable. Besides, it does not cause any environmental problem.

Whether the fossil fuel is an example of this energy?



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12. Electric energy is produced in various ways like hydroelectric, wind power, solar energy, bio-fuel, etc. These energy sources are inexhaustible, sustainable. Besides, it does not cause any environmental problem.

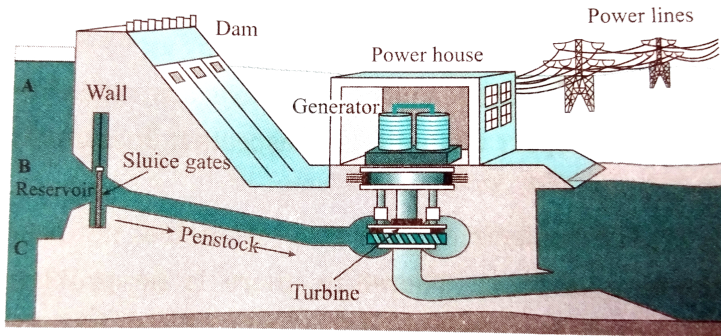
Draw the flow chart of production of electric energy?



13. The schematic of hydroelectric plant is shown in Figure 5.17 on textbook . Water from about middle of the total height of the dam is taken to the turbine, as shown by point B in the diagram.

With reference to point B, potential energy of how much water reservoir in the dam will be

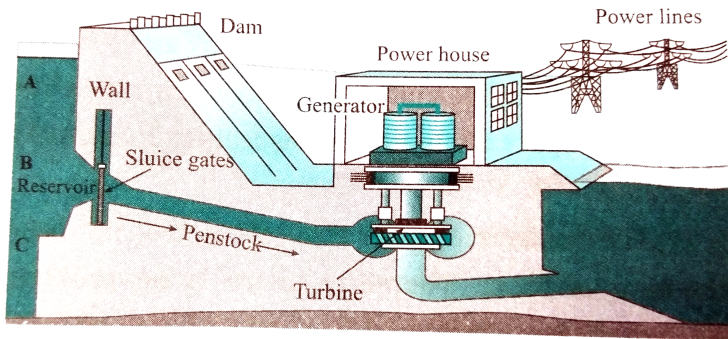
converted into kinetic energy?



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14. The schematic of hydroelectric plant is shown in Figure 5.17 on textbook . Water from about middle of the total height of the dam is taken to the turbine, as shown by point B in the diagram.

What will be the effect on electricity generation, if the channel taking water to turbine starts at point A?

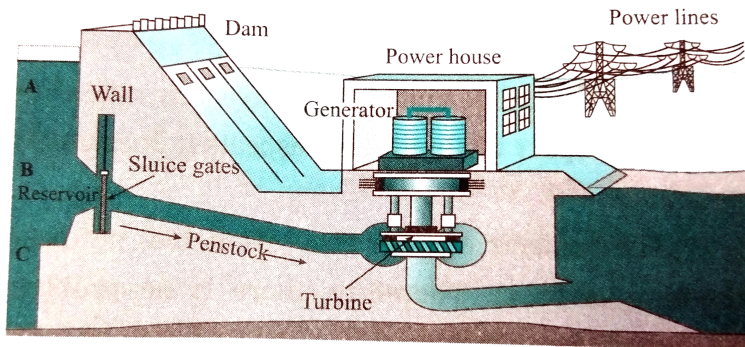


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15. The schematic of hydroelectric plant is shown in Figure 5.17 on textbook . Water from about middle of the total height of the dam is

taken to the turbine, as shown by point B in the diagram.

What will be the effect on electricity generation, if the channel taking water to turbine starts at point C?



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Write Short Note On

1. What are the effects of electrical energy generation on environment? Are fossil fuels a good way of electric energy generation?



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Diagram Based Questions

1. Explain energy transformation in solar thermal electric energy generation. How is

different from a fossil fuel based thermal power plant?



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2. One solar panel produces a potential difference of 18 V and current of 3A. Describe how you can obtain a potential difference of 72 Volts and current of 9A with a solar array using solar panels. You can use sign of a battery for a solar panel.



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3. Observe the connections of cells shown in the following images :

Which connections will give maximum

potential difference?

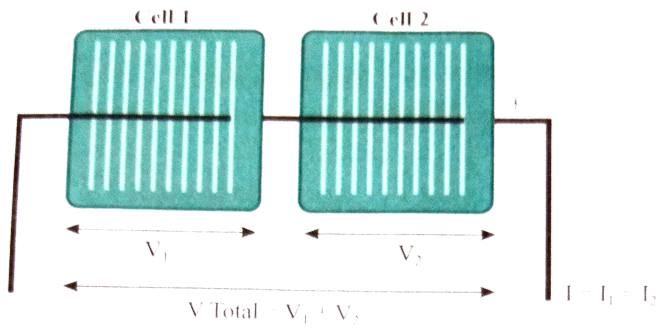
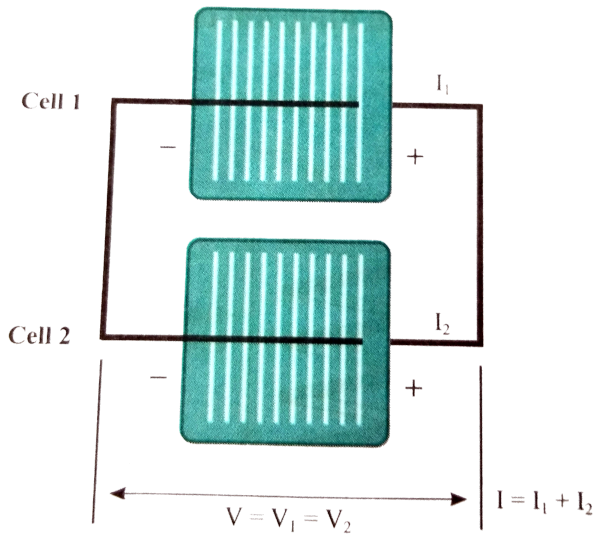


Fig. 5.19 (a)



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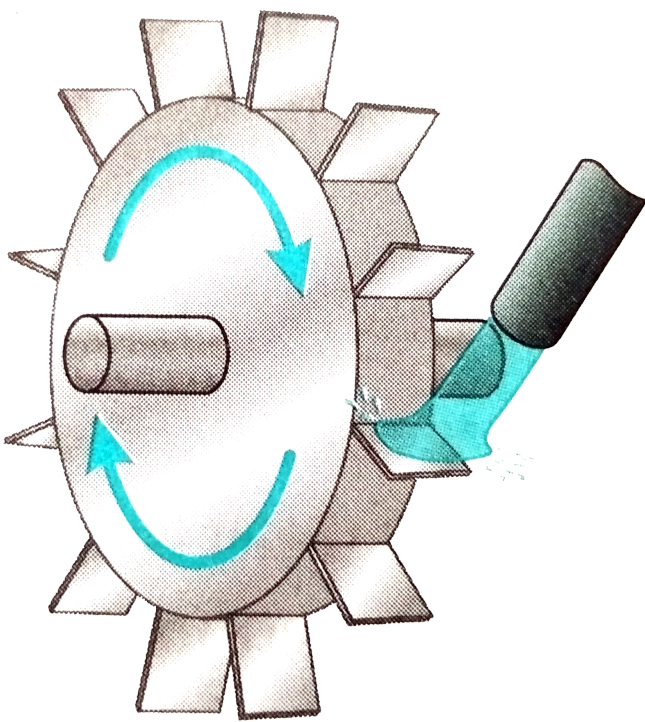
4. How is solar energy used in solar thermal power plants?:

Give one advantages and one disadvantage of this energy.



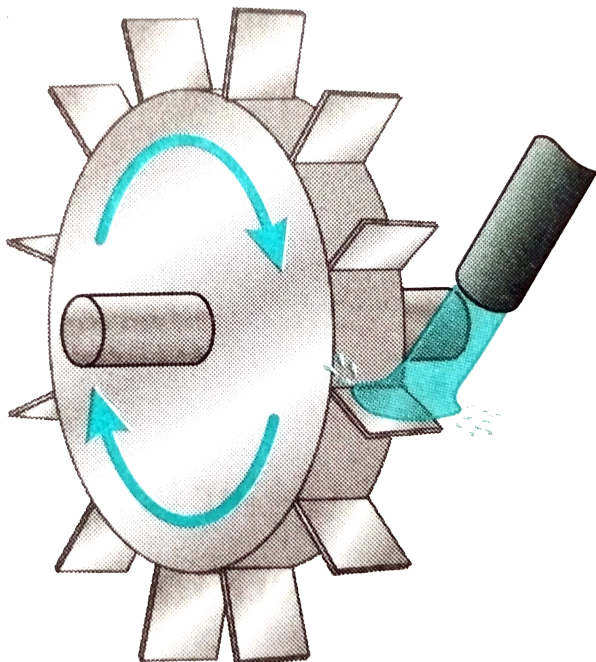
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5. Write the name of the device shown in the above diagram.



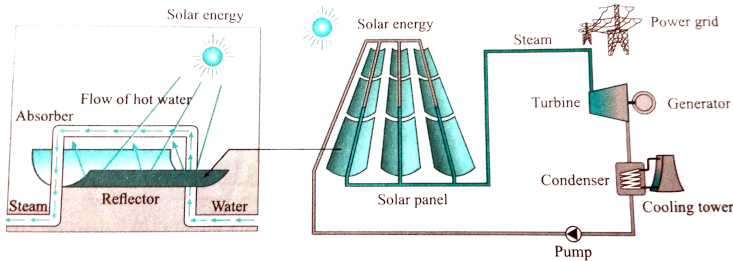
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6. Write briefly the work of the device.



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7. Schematic diagram of Solar thermal electric energy generation :



Explain its working.



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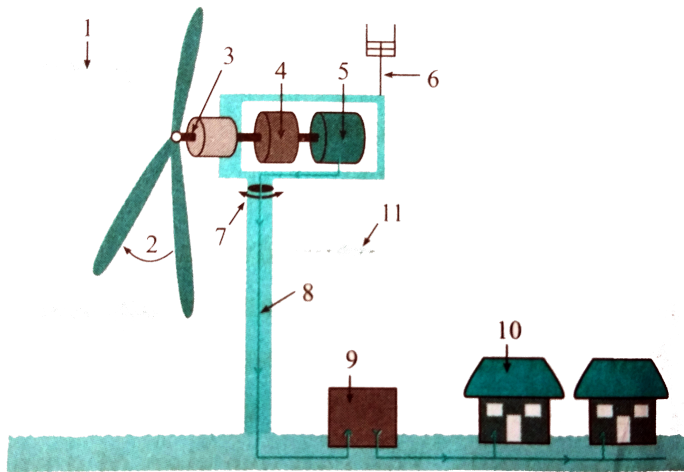
8. Draw and label the diagram of Electromagnetic induction



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9. Answer the questions with help of picture :

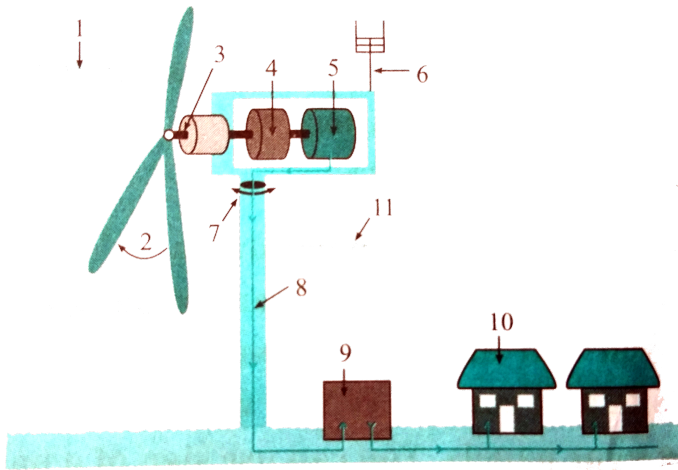
Which type of energy is produced ?



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10. Answer the questions with help of picture :

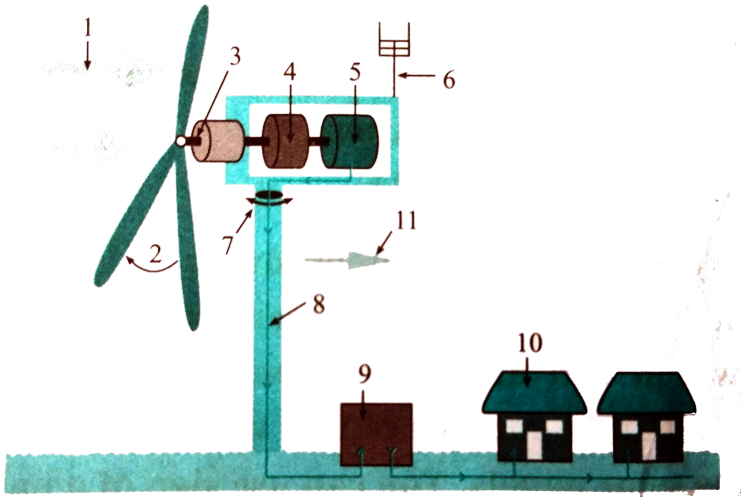
This power plant is based on which energy source.



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11. Answer the questions with help of picture :

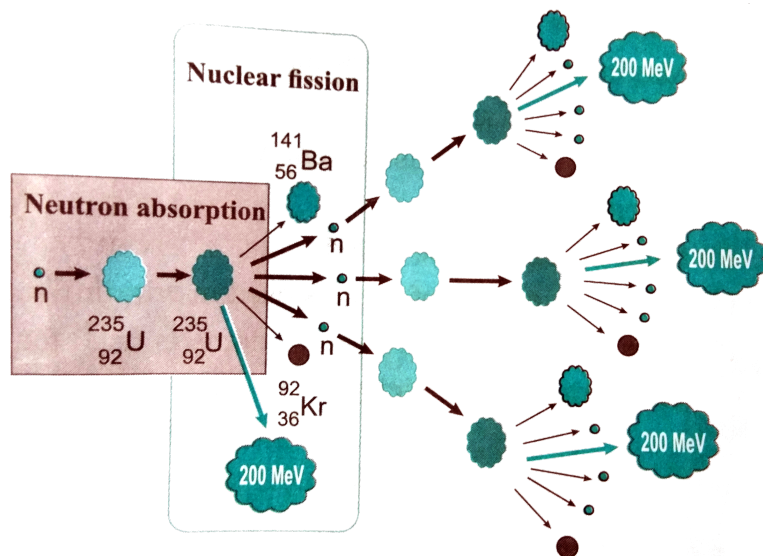
Is this power plant eco-friendly ? How ?



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12. Observe the figure and answer the questions given below.

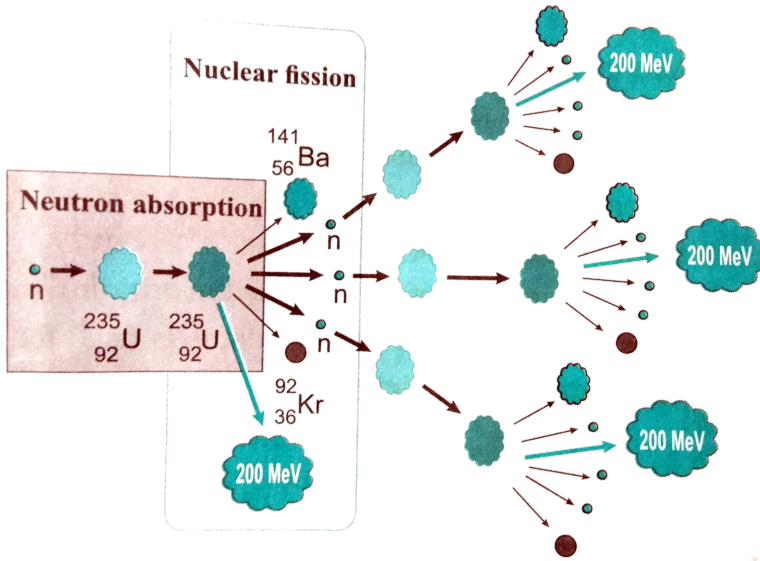
Name the reaction.



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13. Observe the figure and answer the questions given below.

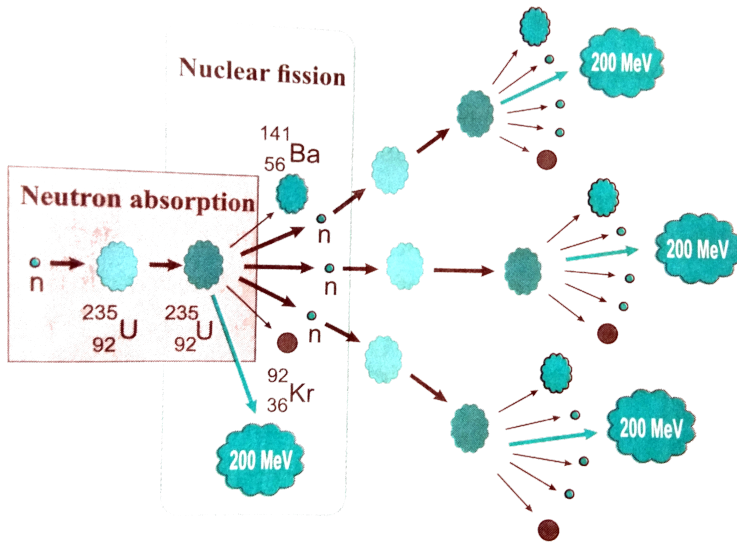
Where is this reaction used?



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14. Observe the figure and answer the questions given below.

Which element is used in it?

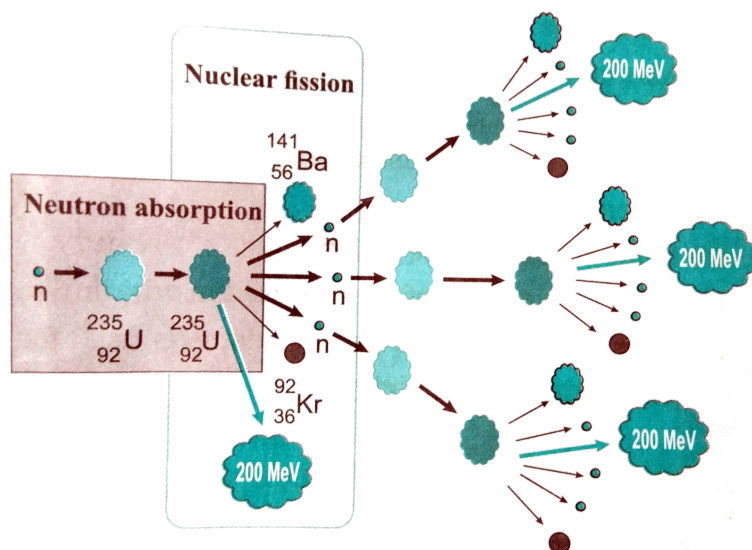


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15. Observe the figure and answer the questions given below.

Identify the process shown in figure and name

it.

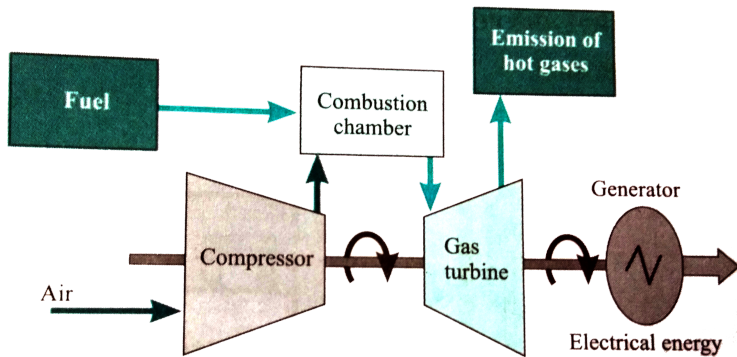


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16. Observe the diagram and answer the questions :

Which energy is generated from the power

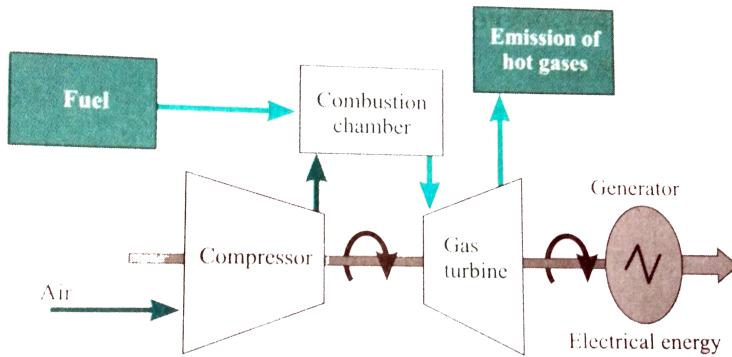
plant ?



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17. Observe the diagram and answer the questions :

State its source.

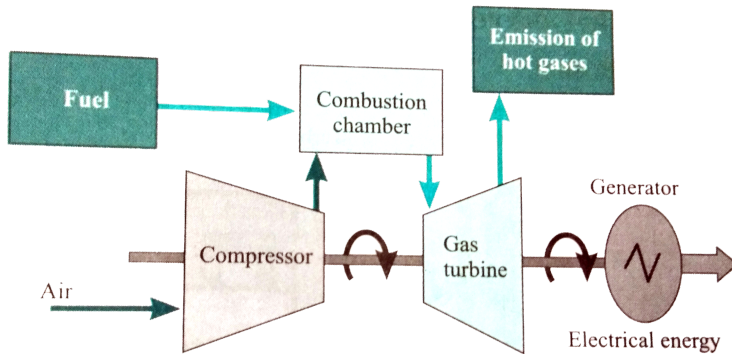


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18. Observe the diagram and answer the questions :

Which is more eci-friendly -- Power generation from coal or power generation from natural

gas ? Why ?



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19. Write the names of apparatus that is used in thermal power plant.

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20. Draw a labelled diagram of Nuclear power plant ?



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21. Label correctly the diagram of power plant based on natural gas ?



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22. Sketch two ways in which solar cells can be connected. Also draw the diagrams to show

the arrangement of solar cells to form solar panel and solar array.



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23. Sketch two ways in which solar cells can be connected. Also draw the diagrams to show the arrangement of solar cells to form solar string.



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24. Sketch two ways in which solar cells can be connected. Also draw the diagrams to show the arrangement of solar cells to form solar string, solar panel and solar array. In which of these setups does current increase?



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Activity Based Questions

1. Solve the following crossword puzzle

(1) Maximum energy generation in India is done using.....energy.

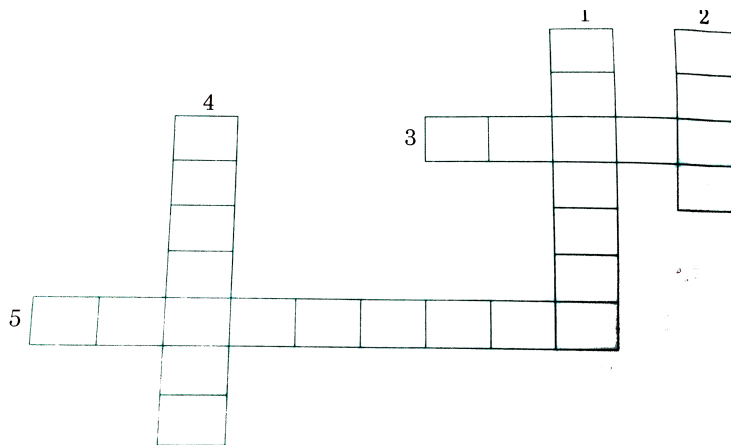
(2).....energy is a renewable source of energy.

(3) Solar energy can be called.....energy.

(4).....energy of wind is used in winmills.

(5).....energy of water in dams is used for

generation of electricity.



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2. Make a table based on forms of energy and corresponding devices.



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3. Which electricity generation process is eco-friendly and which not ?



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4. What is lake tapping ? Why it takes place ?



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5. Get information about major wind power stations in India and their capacity. Make a

table of their location, state and their power generation capacity in MW.



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6. Gather information about major solar photovoltaic power generating plants and their capacity in India.



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Mcqs Based On Projects

1. Which is the most abundant and renewable energy?

A. Thermal power

B. Solar energy

C. Fossil fuels

D. Atomic power

Answer: B



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2. What are the two technologies for harnessing solar energy ?

A. Solar photovoltaics and solar thermal

B. Solar cooker and solar lamp

C. Heat capturing and Heat conversion

D. Active and passive technologies

Answer: A



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3. Which of the following is used in solar cooker to harvest the solar energy

A. Solar panels

B. Silicon cell

C. Mirrors

D. Glass lid

Answer: C



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4. Which of the following is not the source of green energy?

A. Wind

B. Natural gas

C. Sunlight

D. Fossil fuel

Answer: B, D



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5. The solar lamp uses the.....energy.

A. Heat

B. Wind

C. Light

D. Sound

Answer: C



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6. How many major thermal power stations are operative in Maharashtra?

A. 10

B. 12

C. 15

D. 20

Answer: A



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7. What is the commonly used name for the power plant located near Mumbai?

A. BARC

B. TIFR

C. Tata power

D. None of the above

Answer: C



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