PHYSICS

BOOKS - CHETANA PHYSICS (MARATHI ENGLISH)

TOWARDS GREEN ENERGY

Exercise

1. Electromagnetic induction was discovered by _____.

A. Edison

B. Newton

C. Michael Faraday

D. Archimedes

A. A. Edison

B. B. Newton

C. C. Michael Faraday

D. D. Archimedes

Answer:

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2. In combustion of coal, _____ gas is not released.

A. SO_2

B. NO_2

C. NH_3

D. CO_2

A. A. SO_2

B. B. NO_2

C. C. NH_3

D. D. CO_2

Answer:

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3. Each nuclear fission of uranium nucleus releases _____ neutrons.

A. one

B. two

C. three

D. four

A. A. one

B. B. two

C. C. three

D. D. four

Answer:

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4. Water stored in the dam possesses_____ energy.

A. chemical

B. potential

C. kinetic

D. electric

Answer:

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5. The electric energy obtained from solar photovoltaic cell is of _____ type.

A. DC

B. AC

C. static

D. magnetic

Answer:

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6. Solar cell can work during_____ only.

A. night

B. day time

C. evening

D. All of the above

Answer:

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7. Each nuclear fission of uranium nucleus releases _____ energy.

A. 20 MeV

B. 235 MeV

C. 237 MeV

D. 200 MeV

A. A. 20 MeV

B. B. 235 MeV

C. C. 237 MeV

D. D. 200 MeV

Answer:

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8. Wind turbines with capacity right from less than _____ to about _____ are commercially available.

A. 1 kW, 7000 kW

B. 10 kW, 700 kW

C. 1 MW, 700 MW

D. 1 kW, 10kW

A. A. 1 kW, 7000 kW

B. B. 10 kW, 700 kW

C. C. 1 MW, 700 MW

D. D. 1 kW, 10kW

Answer:

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9. A good solar cell can have an efficiency of around _____

A. 0.5

B. 0.1

C. 0.15

D. 0.51

Answer:

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10. The natural gas based power plant in Maharashtra is at_____

A. Koyana

B. Chandrapur

C. Anjanwel

D. Tarapur

Answer:

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11. It took millions of years for the formation of _____ fuels.

A. chemical

B. solid

C. gaseous

D. fossil

Answer:

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12. The photovoltaic cells convert _____ energy into electrical energy.

A. mechanical

B. solar

C. chemical

D. sound

Answer:

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13. _____ is not a component of nuclear power plant.

A. control rods

B. gas turbine

C. steam turbine

D. condenser

A. A. control rods

B. B. gas turbine

C. C. steam turbine

D. D. condenser

Answer:

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14. Find the odd one out:

Boiler, turbine, generator, solar cell.

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15. Find the odd one out:

Thermal energy, wind energy, atomic energy, natural gas power.

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16. Find the odd one out:

Uranium , plutonium, coal, thorium.

Watch Video Solution

17. Find the odd one out:

Flowing water, water stored in dam, moving fan, running train.

Watch Video Solution

18. Find the odd one out:

LPG, CNG, coal, methane.

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19. Find the odd one out:

Edible oil , LPG, CNG, crude oil.

Watch Video Solution

20. Find the odd one out:

Solar energy, nuclear energy, tidal energy, wind energy.

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21. Find the odd one out:

Carbon dioxide, oxygen, sulphur dioxide, nitrogen dioxide.

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22. Find out the correlation:

Thermal power plant : Coal : : Nuclear power plant : _____

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23. Find out the correlation:

Series arrangement of modules : Solar strings

: : parallel arrangement of string : _____

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24. Find out the correlation:

Coal consumption of world : 41% : : coal consumption in India : _____

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25. Find out the correlation:

Natural gas power plant : CNG and LPG : :

Atomic power plant : _____

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26. Find out the correlation:

Silicon solar cell of $1cm^2$: 30 mA : : $100cm^2$:

_____.

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27. Find the odd one out:

Flowing water, water stored in dam, moving fan, running train.

Watch Video Solution

28. Find out the correlation:

Atomic power plant : Steam turbine : : Natural power plant : _____.

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29. Find out the correlation:

Inverter : DC to AC : : Photovoltaic cell : _____.

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30. Match the columns and complete the table:

Column 'A'	Column 'B'	Column 'C'
(1) Coal	(a) Potential energy	(A) Wind electricity plant
(2) Uranium	(b) Kinetic energy	(B) Hydro electric plant
(3) Water reservoir	(c) Nuclear energy	(C) Thermal plant
(4) Wind	(d) Thermal energy	(D) Nuclear power station

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31. Match the columns and complete the table:

(2) Column 'A'	Column 'B'	Column 'C'
(1) Electromagnetic induction	(a) Silicon	(A) Uncontrolled chain
(2) Nuclear plant	(b) Heat from coal	(B) DC
(3) Photovoltaic cell	(c) Faraday	(C) Chemical energy
(4) Thermal power plant	(d) U - 235	(D) Changing magnetic field

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32. Match the columns and complete the table:

Column 'A'	Column 'B'
(1) Thermal power	(a) Only avalible in day time
(2) Wind power	(b) Air pollution
(3) Solar power	(c) Atomic radiation
(4) Atomic power	(d) Wind velocity

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33. Match the columns and complete the table:

Column 'A'	Column 'B'
(1) Series of solar cells	(a) Solar cell
(2) Series of solar panels	(b) Solar String
(3) Solar strings in parallel	(c) Solar panel
(4) semiconductor silicon	(d) Solar array

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34. Match the columns and complete the table:

Column 'A'	Column 'B'
(1) Thermal power station.	(a) CNG
(2) Nuclear power station	(b) Coal
(3) Solar cell	(c) Uranium
(4) Natural gas power	(d) Silicon

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35. State whether the following statements are true or false and correct the false

statement:

There is heat energy stored in coal.

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36. State whether the following statements are true or false and correct the false statement:

In thermal power plant water is boiled using cooling tower.

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37. State whether the following statements are true or false and correct the false statement:

In thermal power plant, turbine rotates because of steam.

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38. State whether the following statements are true or false and correct the false statement:

In the nuclear reactor, aluminium is used as a fuel.

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39. State whether the following statements are true or false and correct the false statement:

The reaction in the atomic reactor is a type of uncontrolled chain reaction.

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40. State whether the following statements are true or false and correct the false statement:

If U-235 is bombarded with a neutron, it gets converted into U-237.

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41. State whether the following statements are true or false and correct the false statement:

Atomic energy is a very good energy source.

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42. State whether the following statements are true or false and correct the false statement:

The efficiency of natural gas plant is less than that of thermal power station working on coal.

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43. State whether the following statements are true or false and correct the false

statement:

Energy released during fission is measured in joules.

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44. State whether the following statements are true or false and correct the false statement:

The products after fission of nuclear fuels are harmless.

Watch Video Solution

45. State whether the following statements are true or false and correct the false statement:

The products after fission of nuclear fuels are harmless.

Watch Video Solution

46. State whether the following statements are true or false and correct the false statement:

In wind turbine of specific capacity is selected depending on altitude.

Watch Video Solution

47. State whether the following statements are true or false and correct the false statement:

In wind turbine of specific capacity is selected depending on altitude.

Watch Video Solution

48. State whether the following statements are true or false and correct the false statement:

In Nuclear fission, Uranium 236 releases two neutrons and converts into Barium and krypton.

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49. State whether the following statements are true or false and correct the false

statement:

Solar cells are made up of Silicon.

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50. Answer the following questions in one sentence.

Write the types of mechanical energy.

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51. Where can we install wind turbines?

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52. Can electrical energy be generated without using the principle of electromagnetic induction?

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53. What is meant by Green energy? Give examples of green energy?

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

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55. Write the definitions/laws:

AC generator:

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56. Define the following:

Thermal power plant

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57. Define the following:

Nuclear power plant

Watch Video Solution

58. Define the following:

Green energy

Watch Video Solution

59. Define the following:

Solar photovoltaic effect

Watch Video Solution

60. Define the following:

Solar panel

Watch Video Solution

61. Define the following:

Solar string

Watch Video Solution

62. Define the following:

Hydro-electric power plant

Watch Video Solution

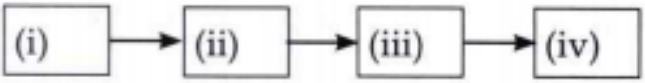
63. Define the following:

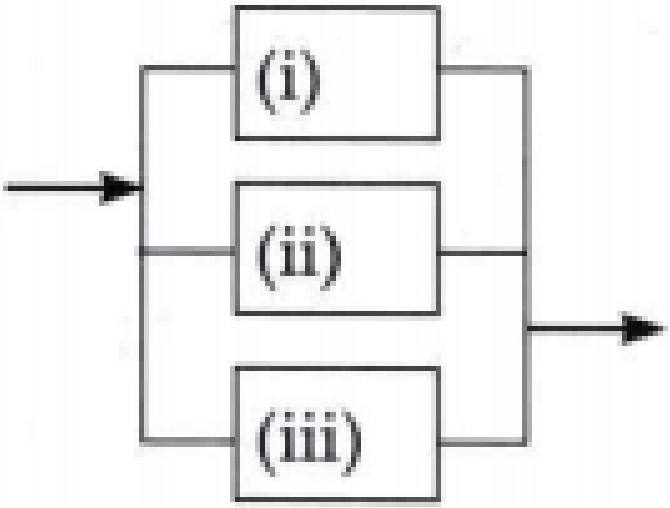
Energy

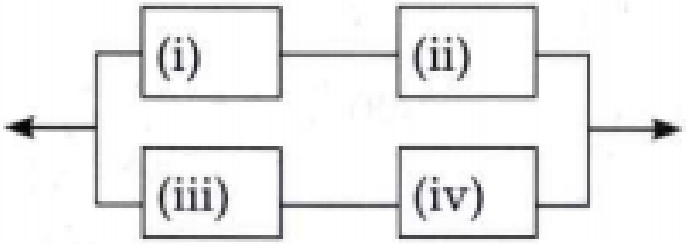
Watch Video Solution

64. Solve the numerical problems:

In the diagrams below, silicon solar cells with dimensions $1cm^2$ are connected. Find the potential difference and electric current?







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65. How much potential differnce and electric current we can get from $100cm^2$ dimension of silicon solar cell?

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66. One solar panel produces a potential difference of 18 V and current of 3 A. Describe how you can obtain a potential difference of 72 volts and current of 9 A with a solar array

using solar panels. You can use sign of a battery for a solar panel.

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67. What are the different forms of energy?

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68. How is electric energy produced?

Watch Video Solution

69. Why the energy in the coal is called as chemical energy?

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70. How does nuclear fission take place?

Watch Video Solution

71. What are the problems associated with hydroelectic power plant?

Watch Video Solution

72. Define the following:

Thermal power plant

Watch Video Solution

73. Stages in generation of Electrical energy from nuclear energy.

Watch Video Solution

74. Define the following:

Nuclear power plant

Watch Video Solution

75. Stages in generation of electrical energy from natural gas.

Watch Video Solution

76. Step by step energy conversion in power plant of natural gas.

Watch Video Solution

77. Stages of generation of Electrical energy from hydroelectric power station.

Watch Video Solution

78. Step by step energy conversion in hydroelectric power plant.

Watch Video Solution

79. Stages in generation of Electrical energy from wind energy.

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80. Step by step energy conversion using wind energy.

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81. Conversion of energy generated by solar cells to AC formed using inverter.

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82. Different stages of generation of electrical energy in solar thermal power plant. OR

Step by step energy conversion in solar thermal power plant.

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83. Distinguish between

Bio-fuels and Fossil fuels

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84. Distinguish between

Conventional energy resources and Non-conventional energy resources.

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85. Distinguish between

Thermal electricity generation and Solar thermal electricity generation.

Watch Video Solution

86. Distinguish between

Solar Cells and Solar thermal plant

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87. Give Scientific Reason :

Atomic energy is an extensive source of energy.

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88. Give Scientific Reason :

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

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89. Give Scientific Reason :

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

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90. Give Scientific Reason :

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

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91. Give Scientific Reason :

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

How can we get the required amount of energy by connecting solar photovoltaic cells?

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92. Give Scientific reason :

In all types of thermal power plants, steam is used to rotate turbines.

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93. Give Scientific reason :

Boilers of the thermal power plant have tall chimneys.

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94. Give Scientific reason :

Though nuclear energy is an extensive source but the amount of electric power generation from nuclear power plants is much less.

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95. Explain the following statements

'Save energy' is the need of the hour.

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96. Define the following:

Green energy

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97. Explain the diagram step-by-step energy conversion in.

Thermal power plant.

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98. Explain the diagram step-by-step energy conversion in.

The Nuclear power plant

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99. Explain the diagram step-by-step energy conversion in.

Hydro-electric power plant

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100. Explain the diagram step-by-step energy conversion in.

Solar thermal power plant:

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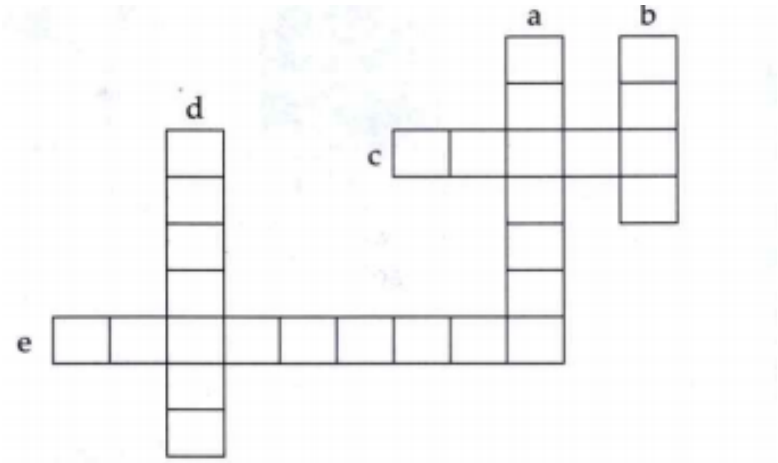
101. Solve the following crossword puzzle:



(a) Maximum energy generation in India is

done using _____ energy. (b) _____ energy is a renewable source of energy. (c) Solar energy can be called _____ energy.(d) _____ energy of wind is used in wind mills. (e) _____ energy of water in dams in used for generation of electricity.

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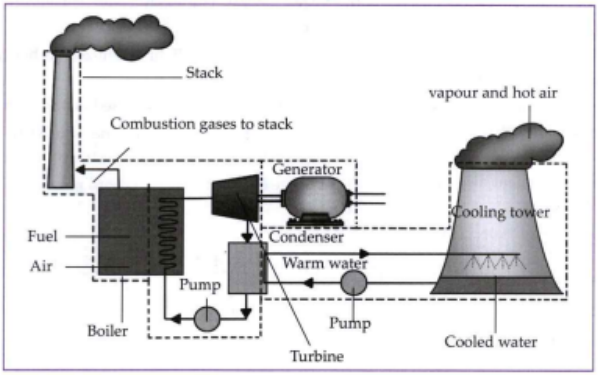
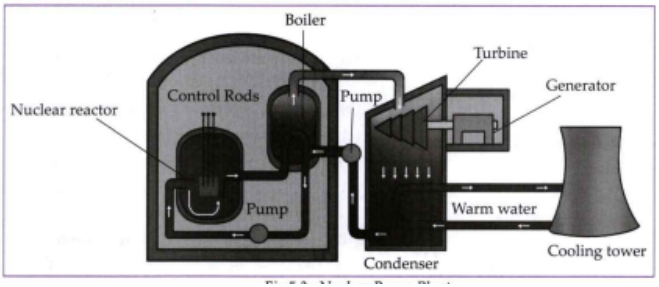
102. Compare and Observe the schematic of thermal power plant and the nuclear power plant. Discuss what are the similarities and

differences between the two?





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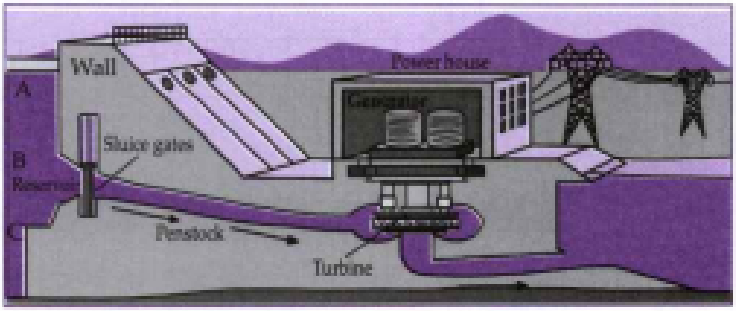
103.



Use your brain power :

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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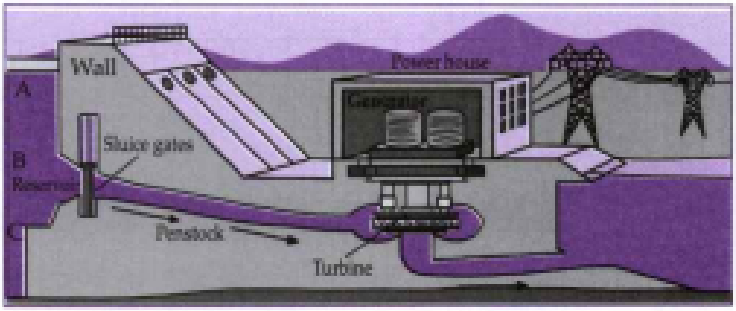
104.



Use your brain power :

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

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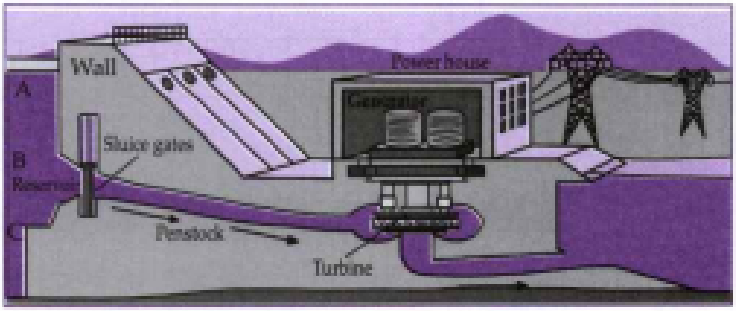
105.



Use your brain power :

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

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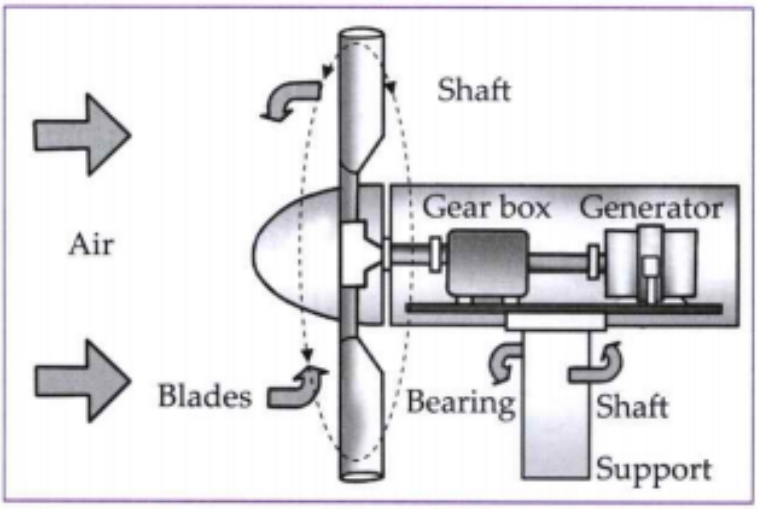
106. 

What is shown in the diagram?

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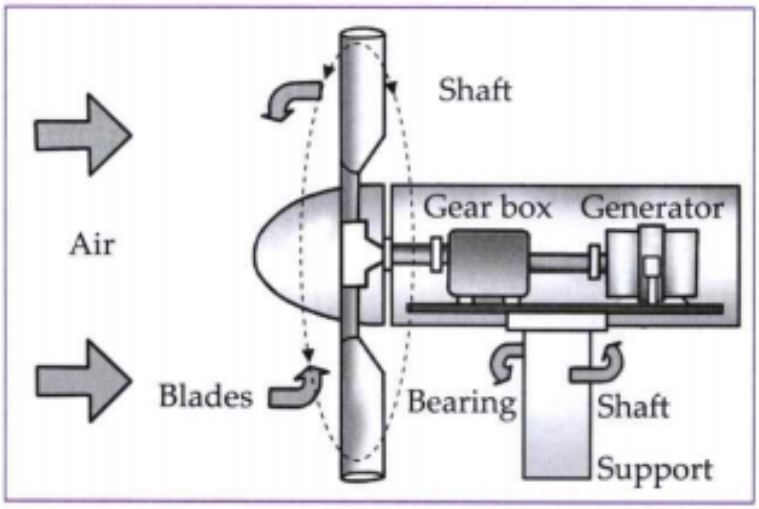
107. 

Give the conversation of energy of the process shown in diagram.

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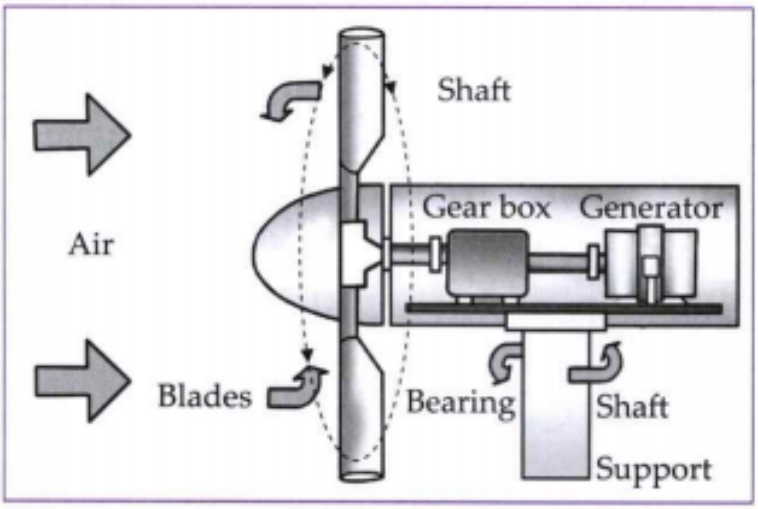
108. 

Is the process shown in diagram is environment friendly? Explain.

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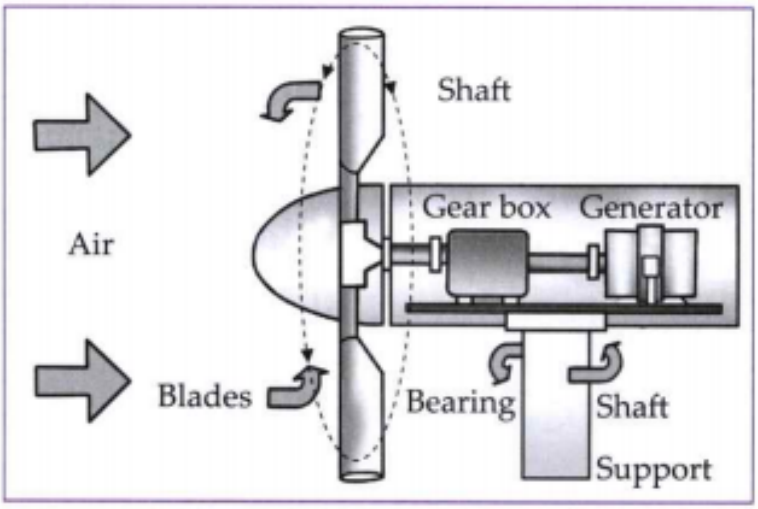
109. 

What are the disadvantages of the process shown in diagram?

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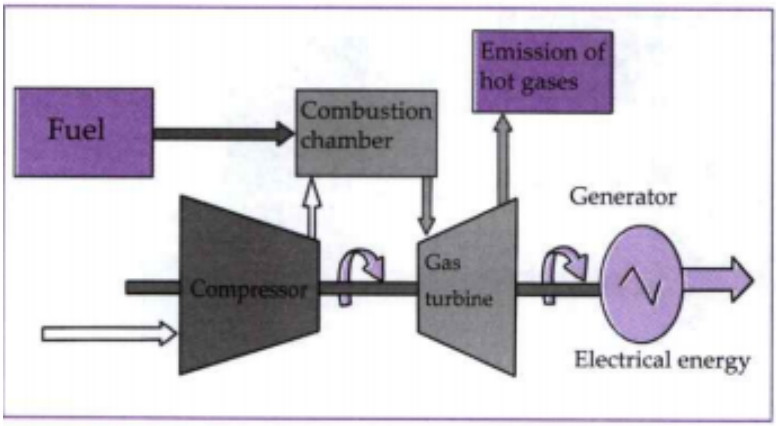
110. 

Which energy is produced shown in the diagram?

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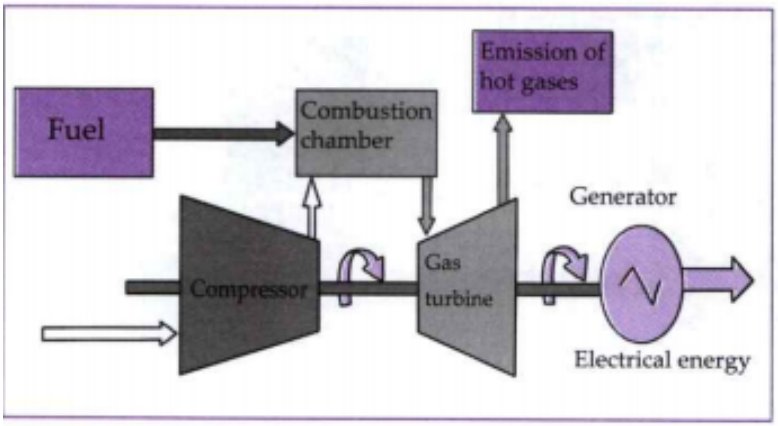
111. 

What is the power plant shown in diagram based on?

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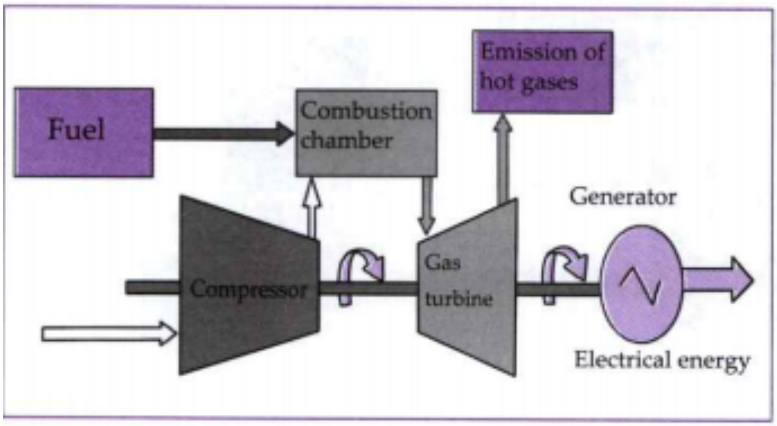
112. 

Is the energy generation eco-friendly shown in diagram? Why?

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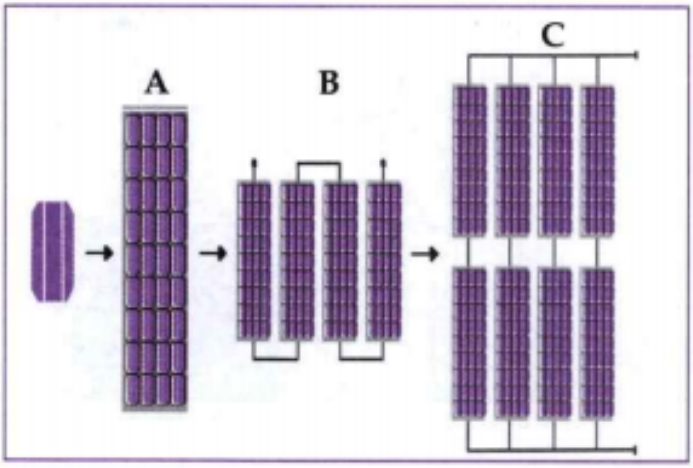
113.



Label A, B and C in the diagram.

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114. What is considered as a basic unit of a solar electric plant?

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115. What are the modules connected in series called?

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116. What is the type of current obtained from a solar cell?

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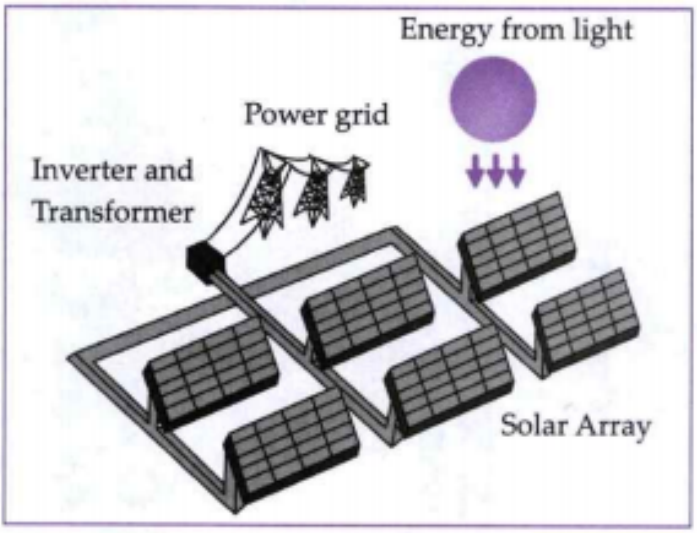
117.



What is the diagram about?

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118. What is the device used to convert DC solar power to AC solar power called?

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119. What is the use of transformer

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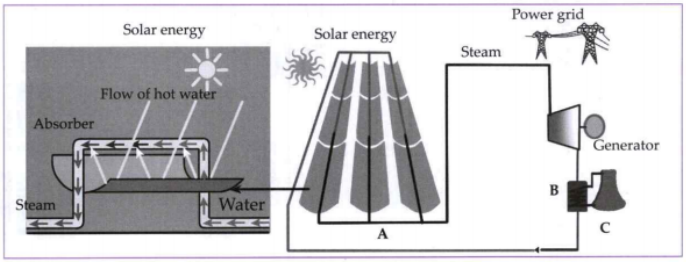
120.



Name the power plant shown in the diagram

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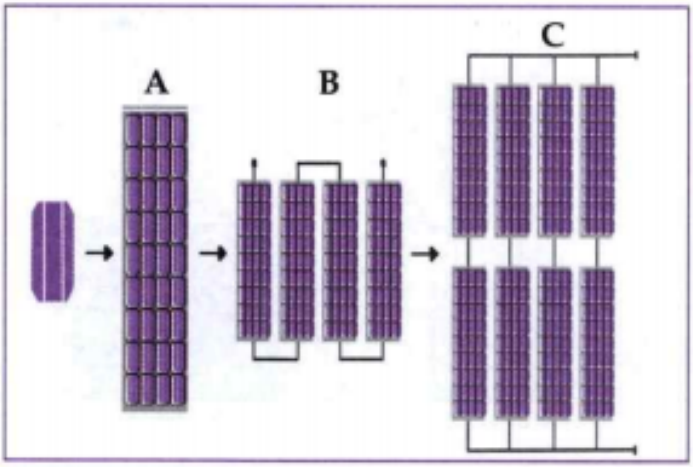
121.



Label A, B and C in the diagram.

Watch Video Solution

122. Complete the flow chart for stages of energy generation in the Solar Thermal power

plant.

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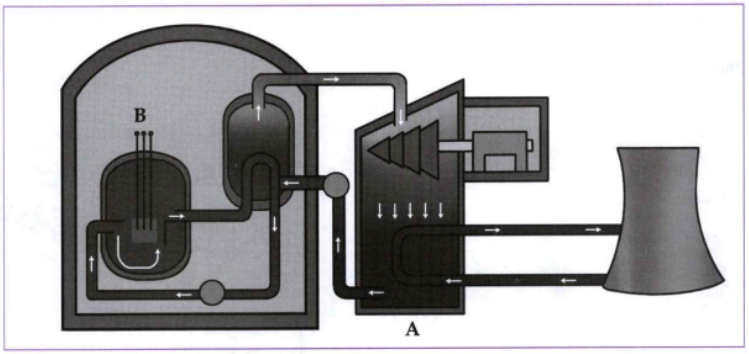
123.



Label A and B in the diagram.

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124. How does nuclear fission take place?

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125. State the drawbacks of a nuclear power plant.

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126. Draw neat and labelled diagrams for the following.

Electromagnetic Induction.

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127. Draw a neat and labelled diagram:

DC generator

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128. Draw neat and labelled diagrams for the following.

Series combination of solar cell.

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129. Draw neat and labelled diagrams for the following.

Solar cells in parallel

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130. Draw neat and labelled diagrams for the following.

A solar panel made from 36 solar cells.

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131. Answer the following questions in brief:

Which fuel is used in thermal power plant? What are the problems associated with this type of power generation?

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132. Which types of power generation involves maximum number of steps of energy conversion? In which type of power generation is the number minimum?

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133. 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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134. Define the following:

Green energy

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135. How does nuclear fission take place?

Watch Video Solution

136. How can you obtain the required amount of energy by connecting solar panels?

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137. What are the advantages and limitations of solar energy?

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138. Write the advantages and limitations of Nuclear energy:

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

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140. Write the advantages and limitations of wind power?

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141. Explain impact of environment on electrical energy generation in detail.

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142. Each nuclear fission of uranium nucleus releases _____ energy.

A. 20 MeV

B. 23.6 MeV

C. 236 MeV

D. 200 MeV

Answer:

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143. Water stored in the dam possesses_____ energy.

A. chemical

B. potential

C. kinetic

D. electric

Answer:

Watch Video Solution

144. Find out the correlation:

Inverter : DC to AC : : Photovoltaic cell : _____.

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145. Name the following: The principle invented by Michael Faraday.

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146. State whether True or False: Water is boiled using boiler for the production of electrical energy.

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147. Distinguish between

Bio-fuels and Fossil fuels

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148. Define the following:

Green energy

 Watch Video Solution

149. Find out the correlation:

Silicon solar cell of $1cm^2$: 30 mA : : $100cm^2$:

_____.

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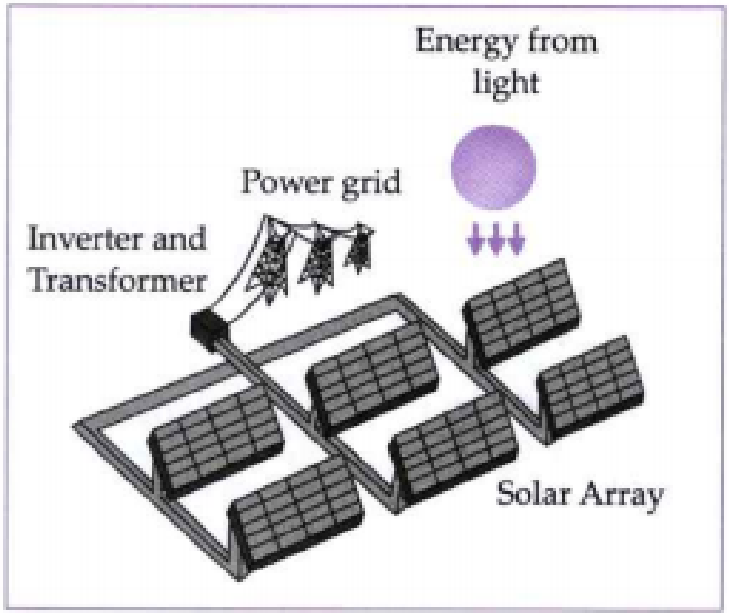
150.



Answer the following

(1) observe the figure carefully, and explain how power is generated in a solar photovoltaic station.

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151. Explain the working of solar thermal power plant, with the help of a flow chart

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

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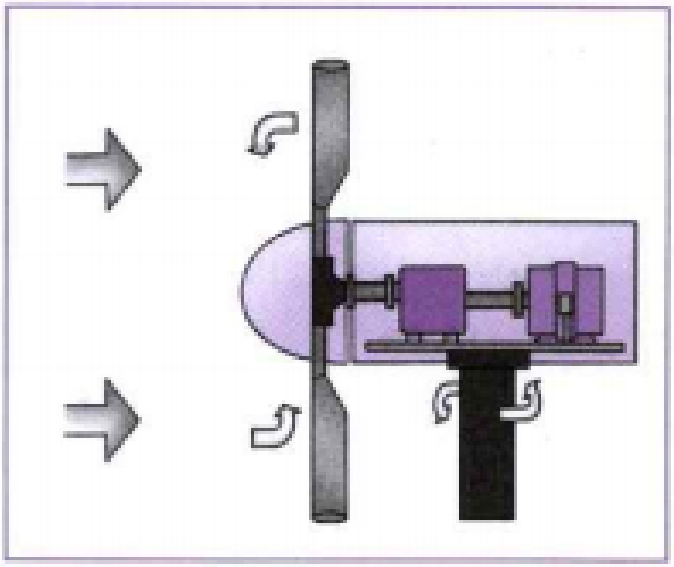
153.

Answer the following as shown in diagram

What is a wind turbine?



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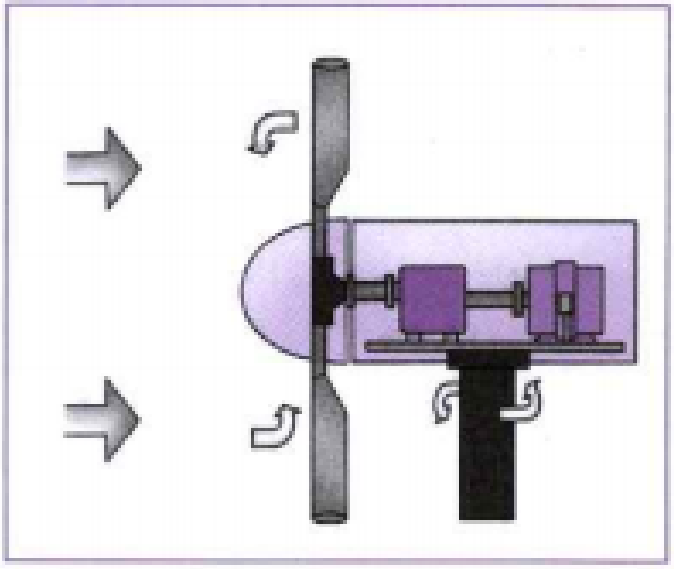
154.

Answer the following as shown in diagram

What is the functional use of gear box?



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155. What are various stages in electricity generation using wind energy?

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156. Explain in detail the advantages of hydroelectric power generation and problems associated with hydroelectric power plant.

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