



PHYSICS

BOOKS - MODERN PUBLICATION

SOURCES OF ENERGY

Exercise

1. What is source of energy? How can it be classified?



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2. What is a renewable source of energy? Give some examples.



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3. Give two examples of non-renewable resources.



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4. Give certain forms of energy along with their source and usage.



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5. Name two conventional sources of energy.



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6. What is coal? Give its uses.



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7. What is petroleum?



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8. What is LPG? What are the advantages of LPG?



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9. What precautions should one take while using LPG?



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10. What is CNG? Give their uses of CNG.



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11. What are the advantages and disadvantages of using hydrogen gas as fuel?



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12. Define

Biomass

Bioenergy. In what forms is the bioenergy stored in biomass.



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13. What is anaerobic degradation? Draw a well-labelled diagram of a fixed dome biogas

plant.



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14. Is biogas a superior fuel than cow dung cakes?



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15. Define wind energy



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16. What is a windmill? Give its principle of working.



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17. Write a short note on wind energy. What are the merits and demerits of wind energy.



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18. How is sun's energy produced? Define solar constant.



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19. Draw a neat and labelled diagram of a box type solar cooker. Write its construction.



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20. Draw a neat and labelled diagram of a box type solar cooker. Write its construction.



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21. Draw a neat and labelled diagram of a box type solar cooker. Write its construction.



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22. Draw a neat and labelled diagram of a box type solar cooker. Write its construction.



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23. What is solar cell. Solar cell panel? Give its advantages and limitations?



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24. State three advantages associated with using solar cells to produce electricity.



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25. Explain why: The solar cooker is painted black from inside.



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26. Name one material used to make a solar cell and also mention the range of voltage produced by a typical cell.



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27. Write the nature, symbol, relative charge and relative mass of Alpha particles.



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28. Write the nature, symbol, relative charge and relative mass of Beta particles.



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29. Write the nature, symbol, relative charge and relative mass of Gamma rays.



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30. Write the nature, symbol, relative charge and relative mass of Neutron.



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31. Write the nature, symbol, relative charge and relative mass of Proton.



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32. What are nuclear reactions? Mentions the laws followed by nuclear reactions.



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33. Tabulate differences between chemical and nuclear reaction.



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34. State the cause of release of energy in nuclear fission reaction. List two demerits of nuclear power generation.



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35. Give two differences between nuclear fission and nuclear fusion reaction.



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36. What are

somatic effect of nuclear reaction?



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37. What are

genetic effect of nuclear reaction?



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38. What is a renewable source of energy? Give some examples.



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39. What is coal? Give its uses.



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40. Write the full form of LPG.



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41. What is the full form of CNG ?



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42. Name the major component of natural gas?



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43. What is the main constituent of LPG ?



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44. What is biomass? Write its uses



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45. What is the range of temperature which can be attained in a box type solar cooker in two to three hours exposure to sun?



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46. What is solar cell panel? describe with the help of a suitable diagram.



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47. Give a demerit of tidal energy?



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48. What is the full form of OTE.



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49. Electrical energy is one of the best sources of energy. true/false.



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50. What is good source of energy?



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51. The source of sun's energy is a reservoir of coal burning in its core. Is this statement true?



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52. What are the limitations of solar energy ?



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53. A device which is capable of using solar energy directly as heat or converting it into

electricity is called a solar energy device. Is this statement correct?



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54. Without glass sheet cover, the time taken to reach a temperature of $100 - 140^{\circ}C$ in a box type solar cooker will be 7-8 hours. Is this statement correct?



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55. The example of fossil fuel is :



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56. A device which converts kinetic energy of wind into mechanical or electrical energy is called a wind mill. Is this statement correct?



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57. Wind energy farms need high levels of maintenance. Is this statement correct?



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58. Wind energy is an indirect source of solar energy. Is this statement correct?



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59. Fill ups

The source of energy which be renewed again and again in a relatively short period of time is called.....source of energy.



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60. Fill ups

The energy trapped during the process of photosynthestis is.....energy.



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61. Fill ups

The mean distance between earth and sun is called..... and its value is..... .



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62. Fill ups

A device used to cook food by utilising the infrared radiations coming from the sun is called..... .



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63. Fill ups

A polished surface is an excellent.....of radiation.



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64. Fill ups

A black surface is a excellent.....of radiations.



[Watch Video Solution](#)

65. Fill ups

Glass sheet is transparent to.....wavelength IR rays but opaque to.....wavelength IR rays.



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66. Fill ups

In a box-type solar cooker, a temperature of 100-140 is achieved in.....hours.



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67. Fill ups

A device used to convert solar radiations directly into electricity is called..... .



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68. Fill ups

Dead plant and animal remains are called..... .



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69. Fill ups

charcoal is a fuel obtained by.....of wood.



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70. Fill ups

The main component of biodgas is..... .



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71. Fill ups

.....is produced by destructive distillation of coal.



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72. Fill ups

.....is mixed in LPG for its detection.



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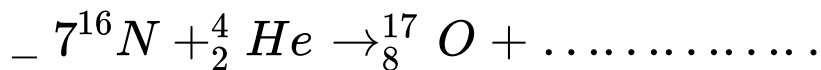
73. Fill ups

CNG stands for..... .



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74. Fill ups



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75. List five activities that you do daily. Mention the energy conversion taking place in those activities.



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76. Write a note on energy crisis.



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77. Write a note on greenhouse effect and its results.



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78. Make an exhaustive list of material which can be used as biomass. Is sun the ultimate source of energy of biomass?



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79. Write a detailed note on the formation of fossil fuels.



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80. List the difference of natural gas and petroleum gas.



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81. Why charcoal is considered better fuel than wood?



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82. Is biogas a superior fuel than cow dung cakes?



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83. You have been deputed by your school principal to train local villagers in the use of biogas plants. With the help of a labelled sketch explain the various parts of the biogas plant.



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84. Which type of liquid mixture solutions are separated by fractional distillation?



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85. which fuels are used in rockets. Why only these fuels are used?



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86. Try to find the reason why Delhi government was compelled for the usage of CNG in buses and three wheelers.



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87. Find out the contribution of usage of fossil fuels on Global Warming. How can the usage of fossil fuel its reduced to minimum?



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88. Charcoal is obtained by

- A. destructive distillation of coal
- B. destructive distillatin of wood
- C. from petrol
- D. none

Answer:



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89. Name the main constituents of biogas.

A. methane

B. butane

C. propane

D. hexane

Answer:



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90. The major component of LPG is

A. pentane

B. methane

C. ethane

D. butane

Answer:



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91. Mercaptan is added to LPG is

- A. increase its efficiency
- B. decreased the ageneration temperature
- C. detect leakage of LPG
- D. increase the signation temperature.

Answer:



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92. The major component of CNG is

A. ethane

B. propane

C. butane

D. methane

Answer:



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93. Which fuel has the highest calorific values?

A. Dung cake

B. Charcoal

C. Hydrogen gas

D. Kerosene oil.

Answer:



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94. Which of the following is not a basic condition for combustion?

A. Fuel

B. Supporter of combustion

C. Ignition temperature

D. Presence of nitrogen

Answer:



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95. Biogas is produced by

A. Anacrobic fermentation

B. Destructive distillation

C. Fractional distillations

D. Crystallisation

Answer:



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96. The major cause of environmental pollution is

A. hydrogen as a fuel

B. biogas as a fuel

C. solar energy

D. fossil fuels

Answer:



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97. Which of the following is not a fuel?

A. CNG

B. LPG

C. Hydrogen

D. Oxygen

Answer:



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98. Spent slurry is used to

A. manure

B. food for livestock

C. fuel

D. none

Answer:



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99. Write the nature, symbol, relative charge and relative mass of Alpha particles.

A. 2,4

B. 1,1

C. 1,2

D. $-1, 0$

Answer:



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100. The mass of gamma rays is

A. 0

B. equal to electron

C. equal to positron

D. none

Answer:



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101. 1MeV=.....

A. $1.6 \times 10^{-10} J$

B. $1.6 \times 10^{-13} J$

C. 931J

D. NOne

Answer:



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102. The percentage of U-235 is naturally occurring uranium is

A. 6.0

B. 0.7

C. 0.9

D. none

Answer:



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103. Which of the following is the fossil fuel?

A. Pu. 239

B. Pb. 90

C. Kr. 93

D. Mo. 95

Answer:



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104. Hydrogen bomb is based on the principle of:

- A. Nuclear fission
- B. Controlled nuclear fission
- C. Uncontrolled nuclear fusion

D. none

Answer:



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105. Which of the following is used as moderator in nuclear reactor?

A. Boron

B. Cadmium

C. Uranium

D. Graphite

Answer:



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106. Which component of sunlight facilitates drying of wheat after harvesting?



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107. Name any two materials used for making of solar cells.



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108. Name any two elements that are used in the fabrication of solar cell?



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109. Name any one element that is used in making solar cells. On what property of the element is this use based?



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110. What is geothermal energy?



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111. Write one application of solar cells.



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112. State the energy transformation that takes place in a solar cell.



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113. What are the limitations of solar energy ?



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114. What is the minimum velocity required to obtain useful energy with a windmill?



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115. Choose the renewable sources of energy from the following list:

Coal, biogas, sun, natural gas.



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116. How is slurry left over after generation of biogas plant used?



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117. Name the main constituents of biogas.



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118. State the main difference between a positron and neutrino.



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119. Name the process by which energy is produced in a nuclear reactor.



[Watch Video Solution](#)

120. Name the process of large energy production in sun.



[Watch Video Solution](#)

121. How is the fission of $_{92}^{235}\text{U}$ nucleus brought about?



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122. Electricity generated by water stored in a dam can be considered to be another form of solar energy'. Explain describing the series of energy transformation sequence taking place during the process.



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123. Mention any two ways by which water can be used to produce hydroelectricity.



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124. Electricity generated with a windmill is another form of solar energy. Explain.



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125. For producing electricity the energy from flowing water is preferred to energy obtained by burning coal. State two reasons for it.



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126. Name any two materials used for making of solar cells.



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127. Write four characteristics used for selecting a suitable fuel.



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128. Which kind of mirror should be used in a solar cooker? Give reason in support of your answer.



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129. Give the names of two energy sources that you would consider to be non-renewable. Give reasons for your choice.



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130. What are coherent sources of light?



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131. Explain why: Solar cookers are covered with glass plate.



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132. Why is energy of water flowing in a river considered to be an indirect form of solar energy.



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133. Write two applications of windmills.

Where are they located mostly in our country.



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134. Why is tidal energy not likely to be a potential source of energy? Give two reasons.



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135. Out of two solar cookers, one was covered by a plane glass slab and the other was left open. Which of the two solar cooker will be more efficient and why?



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136. Write four areas where solar cell is used as source of energy?



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137. What is the importance of hydro power plants in india?



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138. Write any two limitations of hydroenergy.



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139. Define the term fossil fuel. Name three fossil fuels.





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140. What are fossil fuels and how are they made? Give two examples of these.



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141. Name some places in India where reserves of natural gas are found.



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142. Define the term fuel. What are primary and secondary fuels? To which class of fuel do the following belong coke, wood, petroleum, LPG.



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143. What do you mean by destructive distillation of wood? What are the substances obtained during the process?



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144. The use of dry wood as domestic fuel is not considered as good. State two reasons.



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145. Give two reasons why burning of firewood in traditional chullas is considered disadvantageous.



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146. Classify the two fuels-CNG and hydrogen as renewable and non-renewable.



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147. Justify the statement "Hydrogen is a cleaner and better fuel than CNG".



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148. Why is biogas considered as an ideal fuel for domestic use?



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149. Which type of nuclear process is currently used in nuclear electricity generators? Give one example each for the substances used as Nuclear fuel?



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150. Which type of nuclear process is currently used in nuclear electricity generators? Give one example each for the substances used as Nuclear fuel?



Watch Video Solution

151. Which type of nuclear process is currently used in nuclear electricity generators? Give one example each for the substances used as Nuclear fuel?



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152. Define a nuclear fusion reaction. Describe the conditions for the occurrence of a nuclear fusion reaction.



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153. What is the cause of release of unusually large energies in nuclear fission reaction? How is the energy per fission calculated?



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154. What are thermal neutrons?



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155. Give one example and state the rule of a moderator?



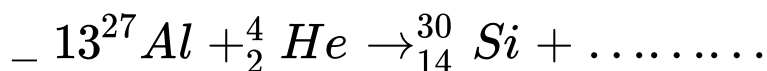
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156. Give one example and state the rule of coolant in a nuclear reactor.



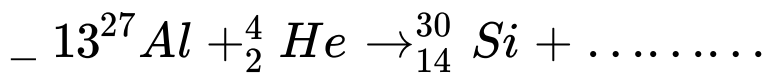
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157. Complete the following nuclear reactions:



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158. Complete the following nuclear reactions:



Watch Video Solution

159. Name the process of large energy production in sun.



Watch Video Solution

160. Mention merits of nuclear fission energy.



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161. Name the phenomenon by which energy is produced in sun.



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162. Give three characteristics of a good fuel?



[Watch Video Solution](#)

163. What are the limitations of the energy that can be obtained from the oceans?



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164. Name the major components of LPG. Why is the leakage of LPG from a gas cylinder detected easily although the gas itself is colorless?



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165. Why biogas is considered superior to animal dung as a fuel?



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166. What is meant by calorific value of a fuel?
Arrange the following fuels in a decreasing order of their calorific values Kerosene, coal, LPG,.



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167. Name the four gases commonly present in biogas.



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168. List two advantages of using biogas over fossil fuels.



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169. List some demerits of fossil fuels?



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170. Explain the process of generation of energy in the sun and name of scientist who was first to propose it.



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171. With the help of a diagram explain the functional areas of cerebrum.



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172. How is the fission of ${}_{92}^{235}\text{U}$ nucleus brought about?



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173. A nucleus has a mass number m and atomic number n . how will these numbers change in the following emission per atom?

One α particle.



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174. A nucleus has a mass number m and atomic number n . how will these numbers change in the following emission per atom?
a positron?



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175. A nucleus has a mass number m and atomic number n . how will these numbers change in the following emission per atom?
a γ ray?



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176. A nucleus has a mass number m and atomic number n . how will these numbers change in the following emission per atom?
a positron?



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177. Draw a labeled diagram of a solar cooker.
What purpose are served by the blackened surface, glass plate, and the mirror in a solar

cooker? What would happen if the plane glass mirror of a solar cooker is replaced by a concave glass mirror?



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178. Write two advantages and two limitations of solar cookers.



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179. What is the basic cause of induced e.m.f.?



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180. Name a major fuel component of biogas.

What are its combustible components.



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181. Give two differences between nuclear fission and nuclear fusion reaction.



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182. Which of the following is a non-renewable source of energy?

A. Wood

B. Sun

C. Fossil fuels

D. Wind

Answer:



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183. Acid rain happens because?

A. sun leads to heating of upper layer of atmosphere.

B. burning of fossil fuels release oxides of carbon

C. electrical charges are produced due to friction amongst clouds

D. earth atmosphere contains acids.

Answer:



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184. Fuel used in thermal power plant is

A. water

B. uranium

C. biomass

D. fossil fuels

Answer:



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185. In a hydro power plant

A. Potential energy possessed by stored water is converted into electricity

B. Kinetic energy possessed by stored water is converted into potential energy

C. Electricity is extracted from water

D. Water is converted into steam to produce electricity.

Answer:



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186. Which of the ultimate source of energy?

A. WAter

B. Sun

C. Uranium

D. fossil fuels

Answer:



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187. Ocean thermal energy is due to

A. energy stored by waves in the ocean

B. temperature difference at different levels in the ocean

C. pressure difference at different levels in the ocean

D. tides arising out in the ocean

Answer:



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188. Which part of the solar cooker is responsible for greenhouse effect?

A. Coating with black colour inside the bod

B. Mirror

C. Glass sheet

D. Outer cover of the solar cooker

Answer:



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189. The power generated in a windmill

A. is more in rainy season damp air would

mean more air mass hitting the blades

B. depends on the height of the tower

C. depends on wind velocity

D. can be increased by planting tall trees

close to the tower

Answer:



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190. Choose the correct statements?

A. Sun can be taken as an inexhaustible source of energy

B. There is infinite storage of fossil fuel inside the earth

C. Hydro and wind energy plants are polluting sources of energy

D. waste from a nuclear power plant can be easily disposed off.

Answer:



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191. In a hydroelectric power plant more electrical power can be generated if water falls from a greater height because

A. its temperature increases

B. Larger amount of potential energy is converted into kinetic energy

C. the electricity content of water increases
with height.

D. more water molecules dissociate into
ions.

Answer:



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192. Choose the incorrect statement regarding
wind power

A. it is expected to harness wind power to minimum in open space.

B. the potential energy content of wind blowing at high altitudes is the source of wind power

C. wind hitting at the blades of a windmill causes them to rotate. The rotation has achieved can be utilised further

D. one possible method of utilising the energy of rotational motion of

the blades of a windmill is to run the turbine of an electric generator.

Answer:



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193. Choose the correct statement?

A. We are encouraged to plant more trees so as to ensure clean environment and also provide biogas

B. gobar gas is produced when crops, vegetable, wastes etc. decompose in the absence of oxygen.

C. the main ingredient of bio gas is ethane and it gives a lot of smoke and also produces a lot of residual ash.

D. Bio mass is a renewable source of energy.

Answer:



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194. Name the main constituents of biogas.

A. methane

B. carbon dioxide

C. hydrogen

D. hydrogen sulphide

Answer:



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195. Which one of the following forms of energy leads to least environment pollution in the process of its harnessing and utilisation?

- A. nuclear energy
- B. thermal energy
- C. solar energy
- D. geothermal energy

Answer:



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196. The major problem in harnessing nuclear energy is how to

A. split nuclues

B. sustain the reaction

C. dispose off spent fuel safely

D. convert nuclear energy into electrical energy

Answer:



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197. Give one example of a nuclear fusion reaction.

A. the magma present in earth

B. the core of earth

C. the atmosphere of earth

D. the core of sun

Answer:



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198. The number of atoms in 20g of SO_3 is approximately

A. $0.025eV$

B. $0.0025eV$

C. $1000eV$

D. $10^8 eV$

Answer:



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199. Energy conversion taking place in a solar cell is

A. electrical to heat energy

B. heat to nuclear energy

C. solar to electrical energy

D. none of these

Answer:



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200. The sheet used to cover the box in a box type solar cooker is made up of

- A. stainless steel
- B. black painted metal
- C. glass
- D. plastic

Answer:



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201. Ozone layer absorbs

A. IR rays

B. UV rays

C. X rays

D. γ rays

Answer:



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202. Which energy is not an indirect source of solar energy?

A. wind energy

B. kinetic energy of flowing water

C. sea wave energy

D. nuclear energy

Answer:



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203. Solar constant is equal to

A. $1.4kWm^{-2}$

B. $2.8kWm^{-2}$

C. $0.14kWm^{-2}$

D. $0.28kWm^{-2}$

Answer:



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204. Which out of the following is the least pollution causing fuel ?

A. Solar

B. Nuclear

C. Chemical energy in petrol

D. chemical energy in diesel

Answer:



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205. Which part of the solar cooker is responsible for greenhouse effect?

A. Minor

B. Wooden box

C. Glass sheet

D. Black paint coating inside the box

Answer:



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206. Which of the following is not a renewable source of energy?

A. Tidal energy

B. OTE

C. Solar energy

D. Petrol

Answer:



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207. What is the ultimate source of energy for the ecosystems?

A. Water

B. Sun

C. Uranium

D. fossil fuels

Answer:



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208. Ocean thermal energy is due to

A. energy stored by waves in the ocean

B. temperature difference at different levels in the ocean

C. pressure difference at different levels in the ocean

D. tides arising out in the ocean

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209. The major problem in harnessing nuclear energy is how to

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210. Name the main constituents of biogas.

A. methane

B. carbon dioxide

C. hydrogen

D. hydrogen sulphide

Answer:



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211. Which part of the solar cooker is responsible for greenhouse effect?

A. Coating with black colour inside the bod

B. Mirror

C. Glass sheet

D. Outer cover of the solar cooker

Answer:



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212. In a hydroelectric power plant more electrical power can be generated if water falls from a greater height because

A. its temperature increases

B. Larger amount of potential energy is converted into kinetic energy

C. the electricity content of water increases with height.

D. more water molecules dissociate into ions.

Answer:



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213. Which one of the following is a non conventional source of energy?

A. Coal

B. Hydro energy

C. Wind energy

D. Ocean energy

Answer:



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214. Which one of the following is a renewable source of energy?

A. Hydrogen

B. Natural gas

C. Oil

D. Coal

Answer:



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215. Hydrogen which is available in plenty, is still not used as domestic fuel because

- A. it pollutes air on burning
- B. it occupies large volume
- C. its reaction with air is explosive
- D. it is a cheap

Answer:



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216. A solar cell is made of

- A. an insulating material
- B. an conducting material
- C. a semiconductivng material
- D. an alloy

Answer:



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217. True or false

Coal has the largest calorific value.



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218. True or false

Compressed natural gas is the main source of wind energy.



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219. Which country is called the country of winds?



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220. True or false

CNG stands for compressed petroleum gas.



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221. True or false

OTEC stand for ocean thermal energy conversion.



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222. Fill ups

Coal can not be sent fire by a match stick as it has..... .



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223. Fill ups

Aviation fuel is a special grade.....



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224. Fill ups

Most abundant fuel on earth is..... .



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225. What is the minimum speed of wind to run a wind mill to maintain the necessary speed of turnbine of an electric generator?



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226. Fill ups

Fermentation of biomass produce..... .



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227. Give three characteristics of a good fuel?



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228. List two advantages of using biogas over fossil fuels.



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229. Write the general principle involved in generating nuclear energy, Name one fuel used

in a nuclear reactor.



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230. Explain why: Solar cookers are covered with glass plate.



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231. Construction of dams submerges large areas of forests. How does this contribute to the greenhouse effect?



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232. Name the chief component of solar cells.

What energy conversion takes place in a solar cell?



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233. Why charcoal is considered better fuel than wood?



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234. What is geothermal energy?



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235. What is wind energy? What is the advantage of wind energy?



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236. How is leakage of LPG detected? What are the precautions we should take in usage of LPG?



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237. Give two differences between nuclear fission and nuclear fusion reaction.



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238. Draw a well labelled diagram of HIV.



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239. Solar cells are used in

- A. artificial satellites
- B. TV relay stations
- C. traffic light
- D. all the above

Answer:



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240. The number of protons and neutrons inside the nucleus is called

- A. atomic number
- B. mass number
- C. neutron number
- D. none of these

Answer:



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241. Which one of the following forms of energy leads to least environment pollution in the process of its harnessing and utilisation?

- A. Nuclear energy
- B. thermal energy
- C. Solar energy
- D. geothermal energy

Answer:



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242. The power generated in a windmill

- A. is more in rainy season damp air would mean more air mass hitting the blades
- B. depends on the height of the tower
- C. depends on wind velocity

D. can be increased by planting tall trees
close to the tower

Answer:



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243. If a person catches fire, he should be

A. immediately thrown in a tank or pond of
water or put under continuous flow of
water.

B. wrapped tightly in a blanket

C. taken to a doctor

D. wrapped tightly in a blanket and taken
to doctor.

Answer:



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Example

1. 6.4 kJ of energy per minute is produced in a nuclear reactor. Find out the number of fissions that take place in it in one hour. If the energy released per fission is $3.2 \times 10^{-11} J$.



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2. If the difference in the mass of reactant and mass of product in a nuclear reactions is 0.02 amu, what is the energy released in one reaction?





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3. Out of two elements A and B with mass number 2 and 235, which one is suitable for making a hydrogen bomb.



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4. What is good source of energy?



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5. What is a good fuel?



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6. If you could use any source of energy for heating your food, which one would you use and why?



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7. What are the disadvantages of fossil fuels?



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8. Why are we looking at alternative sources of energy?



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9. How has the traditional use of wind and water energy been modified for your convenience?



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10. What kind of mirror-concave, convex or plane would be best suited for use in a solar cooker? why?



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11. What are the limitations of the energy that can be obtained from the oceans?



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12. What is geothermal energy?



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13. What are the advantages of nuclear energy?



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14. Can any source of energy be pollution free?

Why or why not?



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15. Hydrogen has been used as a rocket fuel would you consider it a cleaner fuel than C.N.G? Why or why not?



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16. Name two energy sources that you would consider to be renewable give reasons for your choice.





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17. Give the names of two energy sources that you would consider to be exhaustible give reasons for your choice.



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18. A solar water heater cannot be used to get hot water on a :

A. a sunny day

B. a cloudy day

C. a hot day

D. a windy day

Answer:



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19. Which of the following is not an example of a bio-mass energy source?

A. wood

B. gobar gas

C. nuclear energy

D. coal

Answer:



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20. Most of the sources of energy we use represent stored solar energy which of the following is not ultimately derived from the sun's energy?

A. geothermal energy

B. wind energy

C. nuclear energy

D. biomass

Answer:



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21. compare and contrast fossil fuels and sun as sources of energy.



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22. Compare and contrast bio-mass and hydroelectricity as a source of energy



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23. What are the limitations of extracting energy from: the wind



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24. What are the limitations of extracting energy from: waves



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25. What are the limitations of extracting energy from: tides



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26. On what basis would you classify energy sources as: Renewable and non-renewable



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27. On what basis would you classify energy sources as: Exhaustible and inexhaustible?



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28. What are characteristics of an ideal source of energy?



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29. What are the advantages and disadvantages of using a solar cooker? Are there places where solar cookers have limited utility?



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30. What are environmental consequences of the increasing demand for energy? What steps would you suggest to reduce energy consumption?



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31. Why is there a need to harness non-conventional sources of energy? Give two main reasons.



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32. Write two different way of harnessing energy from ocean.



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33. What steps would you suggest to minimize environmental pollution caused by burning of fossil fuels?



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34. What is the role of a plane mirror and a glass sheet in a solar cooker?



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35. Mention three advantages of a solar cell.



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36. What are the limitations is obtaining energy from wind?



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37. How can solar energy be harnessed? Mention any two limitations is using solar energy. How are these limitations overcome?



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38. Make a list of conventional and non-conventional sources of energy. Give a brief

description of harnessing one non-conventional source of energy.



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39. Why is there a need to harness non-conventional sources of energy? Give two main reasons.



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40. What are the environmental consequences of using fossil fuels? Suggest the steps to minimise the pollution caused by various sources of energy including non-conventional sources of energy.



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41. Energy from various sources is considered to have been derived from the sun. Do you agree? Justify your answer.





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42. The water in deeper sections of sea/ocean is much colder than that at the surface. Discuss how can this difference in the temperature be exploited to obtain energy?



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43. What is biomass? What can be done to obtain bioenergy using biomass?



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44. Explain the principle and working of a biogas plant using a labelled schematic diagram.



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45. Mention one feature of biogas that make it an ideal fuel?



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46. Which is the process used to harness nuclear energy these days? Explain its briefly.



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47. How has the traditional use of wind and water energy been modified for your convenience?



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48. What is the minimum speed of wind to run a wind mill to maintain the necessary speed of turbine of an electric generator?



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49. How is nuclear energy generated during nuclear fusion?



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50. Describe the steps involved in obtaining biogas?



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51. Which isotope of uranium can undergo fission readily?



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52. Name two elements which can be used for generation of electricity in a nuclear power plant.



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53. Why many nuclear power plants could not be installed in our country? Give two reason?



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54. How are wastes produced in nuclear power plants different from that produced in thermal power plants?



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55. What happens when wood is burnt in a limited supply of oxygen? Name the residue left behind after that reaction and state two advantages of using this residue as a fuel over wood.





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56. List two nutrients in which the slurry left behind in the digester is rich?



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57. biogas is considered to be boon to the farmers.give reasons



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58. Name any two elements that are used in the fabrication of solar cell?



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59. Out of two elements A and B with mass number 2 and 235, which one is suitable for making a nuclear reaction?



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60. Out of two elements A and B with mass number 2 and 235, which one is suitable for making a hydrogen bomb.



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61. The set of principals in a school is :



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62. Write the characteristic features of the micro organism which help in the production of biogas in a biogas plant.



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63. What is ocean thermal energy (OTE)?



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64. Name the energy obtained from sea or ocean water due to difference in temperature at the surface and in deeper sections of these water bodies.



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65. State the main difference between thermal power and hydro power plants based on electricity generation. Name the projects which were opposed due to the problem of

rehabilitation of displaced people, damage to the ecosystem etc.



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66. What are the limitations of extracting energy from: the wind



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67. A science teacher gave a project to his students to design and prepare a solar cooker

by using low cost materials available. The materials used by students were probably thermocal, glass plate, black paper and mirror etc. they also prepared a report about hte device.

Name the property of solar energy by which solar cooker achieves high temperature.



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68. A science teacher gave a project to his students to design and prepare a solar cooker

by using low cost materials available. The materials used by students were probably thermocal, glass plate, black paper and mirror etc. they also prepared a report about hte device.

Write the role of thermocoal and mirror used in constructing the solar cooker.



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69. State two advantages and two disadvantages of solar energy.



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70. A family consumes 14.5 kg of LPG in 28 days. Calculate the average energy consumed per day if calorific value of LPG is 55kJ/g



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71. Hydrogen has been used as a rocket fuel would you consider it a cleaner fuel than C.N.G? Why or why not?



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72. compare the traditional use of wind and watermill with that of modern one.



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73. How can solar energy be harnessed? Mention any two limitations is using solar energy. How are these limitations overcome?



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74. Differentiate between renewable and non-renewable sources of energy.



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



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76. What is greenhouse effect?



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77. One gram of coal on complete combustion liberates 18kJ of heat. Calculate the amount of coal required to liberate the same amount of heat that an electric heater of 2kW provides in one hour.



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78. Explain why blue vitriol changes to white upon heating.



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79. Give two examples where fractional distillation is used to separate the components of a mixture



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80. Explain why

it is difficult to burn a piece of wood fresh from a tree?



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81. Explain why

pouring dry sand over the fire extinguishes it?



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82. Explain why

it is difficult to use hydrogen as a source of energy?



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83. Why charcoal is considered better fuel than wood?



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84. 48 kJ of energy is produced per minute in a nuclear reactor. Calculate the number of fission which would be taking place in a reactor per second. If the energy released per fission is $3.2 \times 10^{-11} J$.



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85. Give one example of a nuclear fusion reaction.



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86. In one fission of uranium $3 \times 10^{-11} J$ of energy is made available. Calculate the total number of fissions necessary per second to generate power of 15 kW.



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87. What is a nuclear fission reaction?



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88. Mention merits of nuclear fission energy.



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89. What is nuclear fission? Discuss the source of energy released during fission.



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90. Kapil was feeling proud after the installation of solar water heater on his roof top. He knows that he has contributed towards the conservation of environment. Now answer the following questions: Write one advantage and one limitation of using a solar water heater



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91. Kapil was feeling proud after the installation of solar water heater on his root top. He knows that he has contributed towards the conservation of environment. Now answer the following questions: How has Kapil contributed towards the conservation of environment ?



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92. Kapil was feeling proud after the installation of solar water heater on his roof top. He knows that he has contributed towards the conservation of environment.

Now answer the following questions: State the values that prompted Kapil's action.



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