



# BIOLOGY

## BOOKS - KUMAR PRAKASHAN

### SOURCES OF ENERGY

#### Questions And Answers

1. The usable form of energy is dissipated to the surroundings in less usable form. Explain by giving examples.



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**2.** List four forms of energy that you use from morning, when you wake up, till you reach the school.



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**3.** From where do we get these different forms of energy?



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4. Can we call these sources of energy ? Why or why not ?



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5. State any three forms of energy used in our daily lives for doing work with suitable examples.



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6. Consider the various options we have when we choose a fuel for cooking our food.

What are the criteria you would consider when trying to categorise something as a good fuel ?



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7. Consider the various options we have when we choose a fuel for cooking our food.

Would your choice be different if you lived

.....

(a) In a forest?

(b) In a remote mountain village or small island?

(c) In New Delhi?

(d) lived five centuries ago?



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**8. How are the factors different in each case ?**



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**9.** Consider the various options we have when we choose a fuel for cooking our food.

What are the criteria you would consider when trying to categorise something as a good fuel ?



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**10.** What is a good source of energy ?



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**11.** What is a good fuel ?



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



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**13.** Write a short note on : A main energy source at present day



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**14.** What are fossil fuels ? State its disadvantages.



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**15.** How the pollution caused by burning fossil fuels can be reduced ?



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**16.** How would our lives change if we could no longer get electricity supply ?



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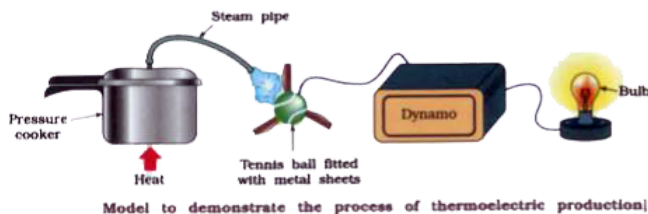
17. To demonstrate the process of thermoelectric production with a model.

Apparatus and materials: Pressure cooker, pipe, tennis ball, metal sheet, dynamo, bulb.

Procedure :

→ Take a table-tennis ball and make three slits into it.

→ Put semicircular



→ Put semicircular fins cut

out of a metal sheet into these slits.

→ Pivot the tennis ball on an axle through

its centre with a straight metal wire fixed to a rigid support. Ensure that the tennis ball rotates freely about the axle.

- Now connect a cycle dynamo to this.
- Connect a bulb in series.
- Direct a jet of water or steam produced in a pressure cooker at the fins. Note down your observation.



Observation : The bulb gets lighted.

Which energy conversion do you think is taking place in this model ?



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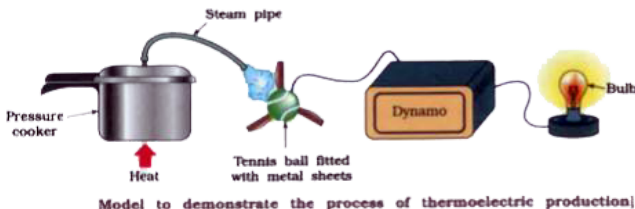
18. To demonstrate the process of thermoelectric production with a model.

Apparatus and materials: Pressure cooker, pipe, tennis ball, metal sheet, dynamo, bulb.

Procedure :

→ Take a table-tennis ball and make three slits into it.

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→ Now connect a cycle dynamo to this.

→ Connect a bulb in series.

→ Direct a jet of water or steam produced in a pressure cooker at the fins. Note down your observation.



Observation : The bulb gets lighted.

Which structure in the model acts as a turbine ?



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**19.** To demonstrate the process of thermoelectric production with a model.

Apparatus and materials: Pressure cooker, pipe, tennis ball, metal sheet, dynamo, bulb.

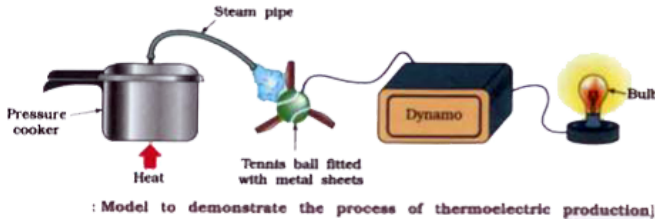
Procedure :

→ Take a table-tennis ball and make three slits into it.

→

Put

semicircular



fins cut

out of a metal sheet into these slits.

→ Pivot the tennis ball on an axle through its centre with a straight metal wire fixed to a rigid support. Ensure that the tennis ball rotates freely about the axle.

→ Now connect a cycle dynamo to this.

→ Connect a bulb in series.

→ Direct a jet of water or steam produced in a pressure cooker at the fins. Note down your

observation.



Observation : The bulb gets lighted.

How electricity generated in this simple model

?



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20. To demonstrate the process of thermoelectric production with a model.

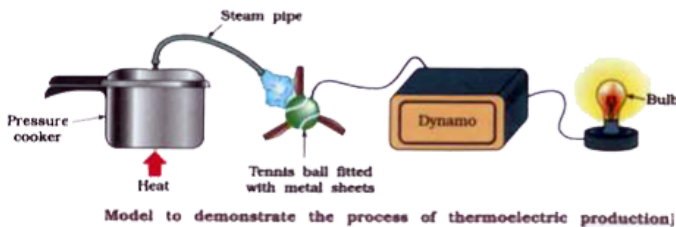
Apparatus and materials: Pressure cooker, pipe, tennis ball, metal sheet, dynamo, bulb.



Procedure :

→ Take a table-tennis ball and make three slits into it.

→ Put semicircular



fins cut

out of a metal sheet into these slits.

→ Pivot the tennis ball on an axle through its centre with a straight metal wire fixed to a rigid support. Ensure that the tennis ball rotates freely about the axle.

→ Now connect a cycle dynamo to this.

- Connect a bulb in series.
- Direct a jet of water or steam produced in a pressure cooker at the fins. Note down your observation.



Observation : The bulb gets lighted.

What do the simplest turbines have ?



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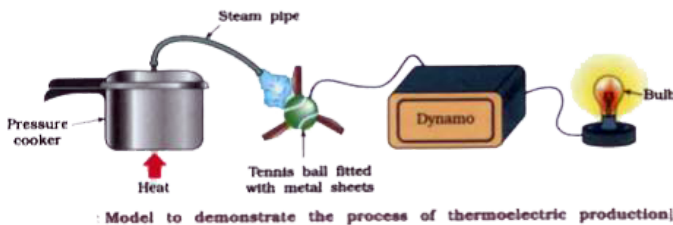
**21.** To demonstrate the process of thermoelectric production with a model.

Apparatus and materials: Pressure cooker, pipe, tennis ball, metal sheet, dynamo, bulb.

Procedure :

→ Take a table-tennis ball and make three slits into it.

→ Put semicircular



fins cut

out of a metal sheet into these slits.

→ Pivot the tennis ball on an axle through its centre with a straight metal wire fixed to a rigid support. Ensure that the tennis ball

rotates freely about the axle.

→ Now connect a cycle dynamo to this.

→ Connect a bulb in series.

→ Direct a jet of water or steam produced in a pressure cooker at the fins. Note down your observation.



Observation : The bulb gets lighted.

Which form of energy is essential in today's life ?



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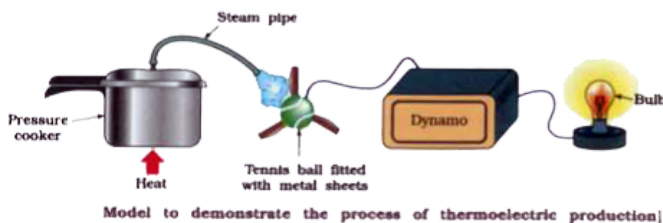
22. To demonstrate the process of thermoelectric production with a model.

Apparatus and materials: Pressure cooker, pipe, tennis ball, metal sheet, dynamo, bulb.

Procedure :

→ Take a table-tennis ball and make three slits into it.

→ Put semicircular



→ fins cut

out of a metal sheet into these slits.

→ Pivot the tennis ball on an axle through

its centre with a straight metal wire fixed to a rigid support. Ensure that the tennis ball rotates freely about the axle.

→ Now connect a cycle dynamo to this.

→ Connect a bulb in series.

→ Direct a jet of water or steam produced in a pressure cooker at the fins. Note down your observation.



Observation : The bulb gets lighted.

What is your conclusion from this activity ?



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**23. Write short note : Thermal power plant**



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**24. Explain in detail : Hydropower plants**



**Watch Video Solution**

**25. Explain biomass as energy source.**



**Watch Video Solution**

**26.** What is biogas ? How is the use of biogas is beneficial ?



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**27.** Explain in brief : Biogas production



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**28.** Write a short note on : Biogas Plant



**Watch Video Solution**



**29.** Write a short note : Wind energy



**Watch Video Solution**

**30.** State advantages and limitations in harnessing wind energy.



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**31.** What are the disadvantages of fossil fuels ?



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**32.** Why are we looking at alternative sources of energy ?



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**33.** How has the traditional use of wind and water energy been modified for our convenience ?



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**34.** Why are we looking at alternative sources of energy ?



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**35.** Find out from your grandparents or other elders .....

(a) how did they go to school?

(b) how did they get water for their daily needs when they were young ?

(c) what means of entertainment did they use

?

Compare the above answers with how you do these takes now.

Is there a difference? If yes, in which case more energy from external sources is consumed?



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**36.** Some people say that if we start living as our ancestors, this would conserve energy and our ecosystem. Do you think this idea is feasible ?



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**37.** Explain sun as non-conventional source of energy.



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**38.** To demonstrate, "black surface absorbs more heat as compared to a white surface".

Apparatus - Materials :

Conical flasks, water, thermometer



Procedure :

- Take two conical flasks and paint one white and the other black.
- Fill water in the both flask.
- Place the conical flasks in direct sunlight for half an hour to one hour.
- Measure the temperature of the water in both conical flask with a thermometer.

If you touch the conical flasks, which one is hotter ?



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**39.** To demonstrate, "black surface absorbs more heat as compared to a white surface".

Apparatus - Materials :

Conical flasks, water, thermometer



Procedure :

- Take two conical flasks and paint one white and the other black.
- Fill water in the both flask.
- Place the conical flasks in direct sunlight for half an hour to one hour.
- Measure the temperature of the water in both conical flask with a thermometer.



Which property is used in solar cooker and solar water heater ?

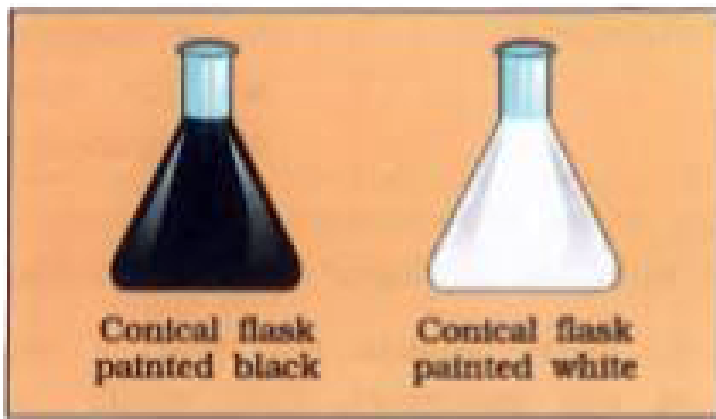


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**40.** To demonstrate, "black surface absorbs more heat as compared to a white surface".

Apparatus - Materials :

Conical flasks, water, thermometer



Procedure :

- Take two conical flasks and paint one white and the other black.
- Fill water in the both flask.
- Place the conical flasks in direct sunlight for half an hour to one hour.
- Measure the temperature of the water in both conical flask with a thermometer.

In which ways this finding can be used in our daily life ?

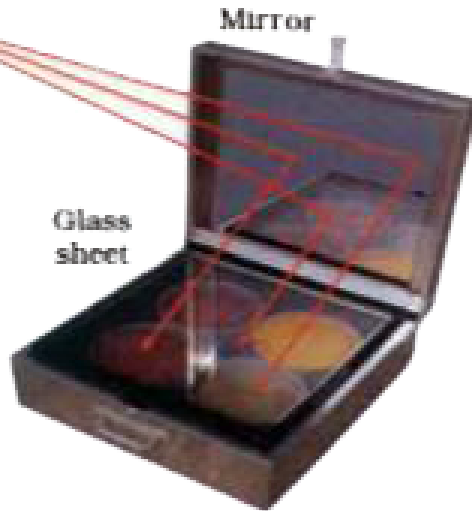


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**41.** To study the structure and working of a solar cooker and/or water heater.

Activity is done for understanding how the solar equipments are insulated and how does maximum heat absorption is ensured.

Sun rays  
being  
reflected



Solar cooker]

Property : A black surface absorbs more heat.

Structure :

→ It consists of an insulated metal box or a wooden box which is painted black from inside.

→ The box has a thick glass sheet as a cover over the box.

→ A plane or concave mirror is attached to the box that acts as a reflector.

→ Mirror focuses the rays of the sun into the box.

Why is a glass sheet used ?

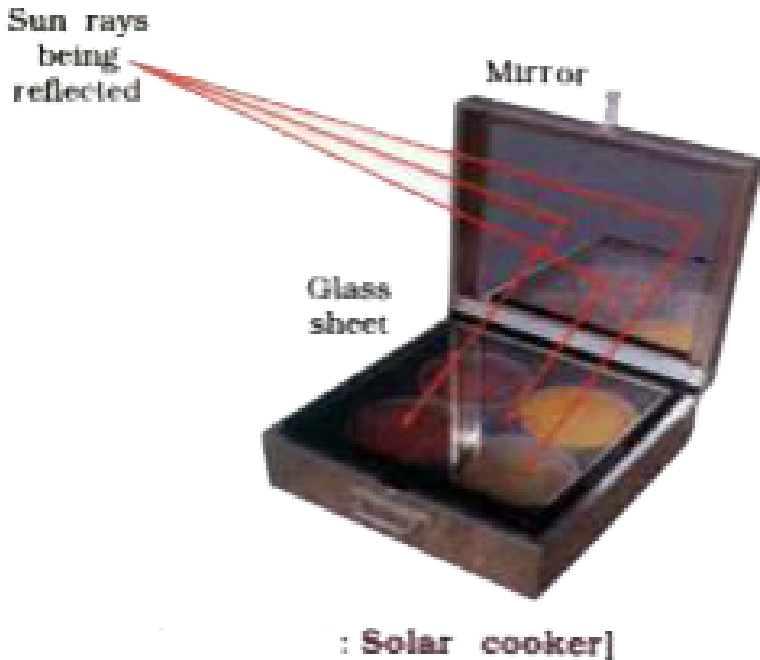


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**42.** To study the structure and working of a solar cooker and/or water heater.

Activity is done for understanding how the solar equipments are insulated and how does

maximum heat absorption is ensured.



Property : A black surface absorbs more heat.

Structure :

→ It consists of an insulated metal box or a wooden box which is painted black from inside.

→ The box has a thick glass sheet as a cover

over the box.

→ A plane or concave mirror is attached to the box that acts as a reflector.

→ Mirror focuses the rays of the sun into the box.

How is heat reflected into the box ?

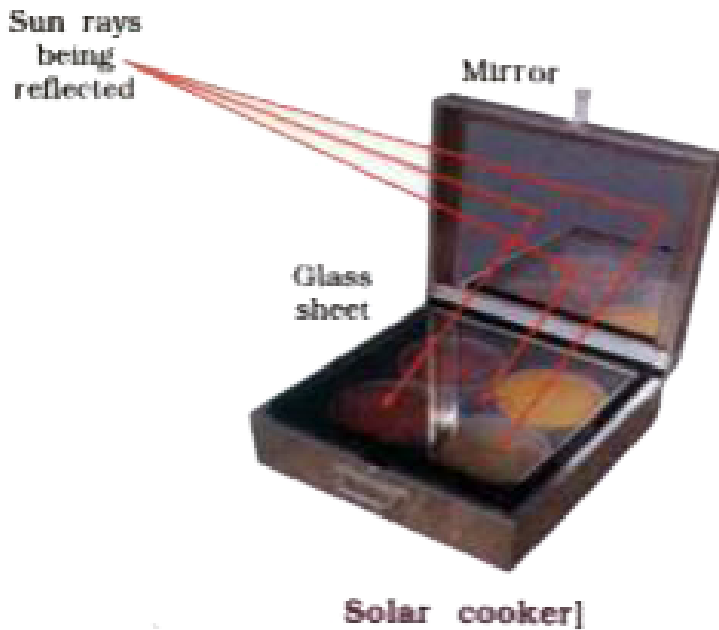


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**43.** To study the structure and working of a solar cooker and/or water heater.

Activity is done for understanding how the

solar equipments are insulated and how does maximum heat absorption is ensured.



Property : A black surface absorbs more heat.

Structure :

→ It consists of an insulated metal box or a wooden box which is painted black from inside.



→ The box has a thick glass sheet as a cover over the box.

→ A plane or concave mirror is attached to the box that acts as a reflector.

→ Mirror focuses the rays of the sun into the box.

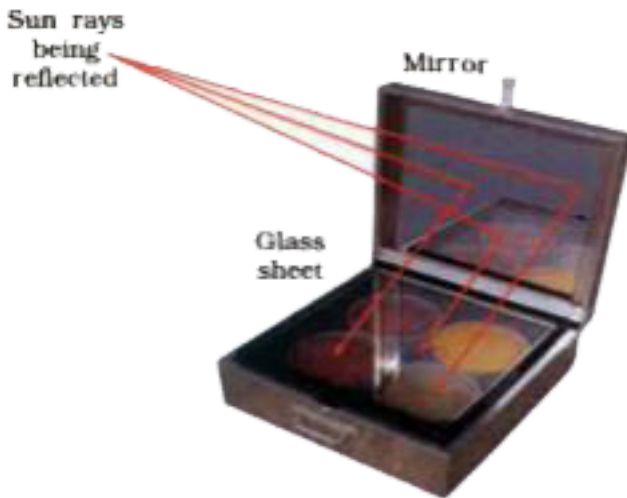
State energy conversion in solar cooker/solar water heater.



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**44.** To study the structure and working of a solar cooker and/or water heater.

Activity is done for understanding how the solar equipments are insulated and how does maximum heat absorption is ensured.



Solar cooker]

Property : A black surface absorbs more heat.

Structure :

→ It consists of an insulated metal box or a wooden box which is painted black from inside.

→ The box has a thick glass sheet as a cover over the box.

→ A plane or concave mirror is attached to the box that acts as a reflector.

→ Mirror focuses the rays of the sun into the box.

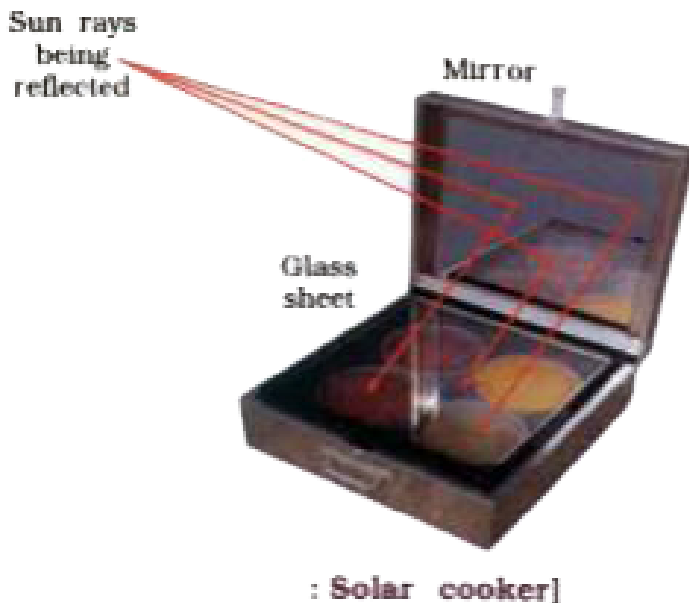
What temperature is achieved in solar cooker/solar water heater ?



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**45.** To study the structure and working of a solar cooker and/or water heater.

Activity is done for understanding how the solar equipments are insulated and how does maximum heat absorption is ensured.



Property : A black surface absorbs more heat.

Structure :

→ It consists of an insulated metal box or a wooden box which is painted black from inside.

→ The box has a thick glass sheet as a cover over the box.

→ A plane or concave mirror is attached to the box that acts as a reflector.

→ Mirror focuses the rays of the sun into the box.

State the advantages and limitations of using the solar cooker or solar water heater.



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**46. Explain : Solar cells**



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**47. Explain in short :**

Tidal energy



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**48.** Explain in short :

Wave energy



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**49.** Explain in short :

Ocean thermal energy



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50. What is called hot spots ? How is geothermal energy exploited from it ? In which countries such power plants are in operational ?



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51. Explain how in nuclear energy is generated through nuclear fission process.



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**52.** Write a short note : Nuclear fission



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**53.** Mention the major hazard of nuclear energy or nuclear power generation.



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**54.** What is the ultimate source of energy for biomass, wind and ocean thermal energy ?





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**55.** Is geothermal energy and nuclear energy different in this respect ? Why ?



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**56.** Where would you place hydroelectricity and wave energy ?



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**57.** What kind of mirror-concave, convex or plain - would be best suited for use in a solar cooker ? Why ?



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



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**59.** What is geothermal energy ?



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**60.** What are the advantages of nuclear energy ?



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**61.** On which basis are the factors /points, chosen for the energy source ?



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**62.** State any two names of pollution free source. Which one among it is best one ? Why ?



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**63.** Can any source of energy be pollution free ? Why or why not ?



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**64.** Hydrogen has been used as a rocket fuel.

Would you consider it a cleaner fuel than CNG

? Why or why not ?



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**65.** Why use of bio-fuel/biomass is better as

compared to fossil fuel ?



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**66.** The estimated coal reserves are said to be enough to last us for another two hundred years. Do you think we need to worry about coal getting depleted in this case ? Why or why not?



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**67.** It is estimated that the sun will last for another five billion years. Do we have to worry

about solar energy getting exhausted ? Why or why not ?



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**68.** On the basis of the debate, decide which energy sources can be considered (i) Exhaustible, (ii) Inexhaustible, (ii) Renewable and (iv) Non-renewable. Give your reasons for each choice.



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**69.** Name two energy sources that you would consider to be renewable. Give reasons for your choices.



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**70.** Give the names of two energy sources that you would consider to be exhaustible. Give reasons for your choices.



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## Textual Exercise

1. A solar water heater cannot be used to get hot water on .....



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2. Which of the following is not an example of a biomass energy source ?



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3. 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?



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4. Compare and contrast fossil fuels and the sun as direct source of energy.



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5. Compare and contrast biomass and hydroelectricity as source of energy.



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6. What are the limitations of extracting energy from

(a) the wind ?

(b) waves ?

(c) tides ?



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7. On what basis would you classify energy sources as .....

(a) renewable and non-renewable ?

(b) exhaustible and inexhaustible ?

Are the options given in (a) and (b) the same ?



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8. What are the qualities of an ideal source of energy?



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



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**10.** What are the environmental consequences of the increasing demand for energy ? What

steps would you suggest to reduce energy consumption ?



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## Additional Questions And Answers

1. Distinguish between :

Solar Cooker and Solar Cell Panel



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2. Distinguish between :

Fossil fuels and Bio fuels



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3. Give scientific reasons for the following statements :

From environmental point of view, we should reduce the use of fossil fuels.



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4. Give scientific reasons for the following statements :

Though hydropower is renewable source of energy, it creates certain problems.



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5. The use of dung as raw material for biogas production is profitable than using it only as fertiliser or fuel.



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6. In spite of the high cost, solar cells are widely used.



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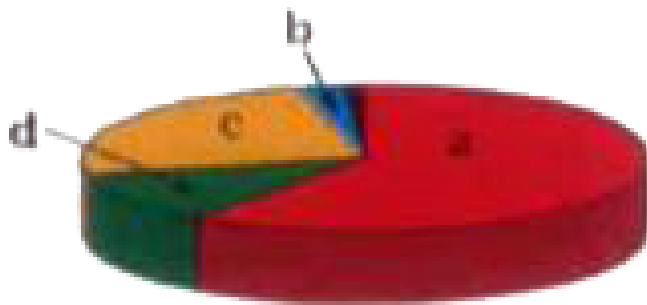
7. Generation of nuclear energy hazardous.



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8. Carefully observe the given diagram/chart and answer the questions based on it.

(1) Observe the following pie-chart showing the major sources of energy.



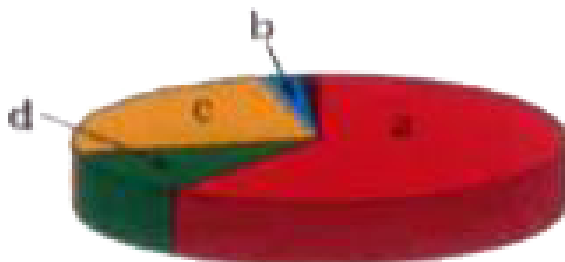
Identify 'a' and state where is it used as a fuel to generate electric energy through conversion of heat energy.



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9. Carefully observe the given diagram/chart and answer the questions based on it.

(1) Observe the following pie-chart showing the major sources of energy.



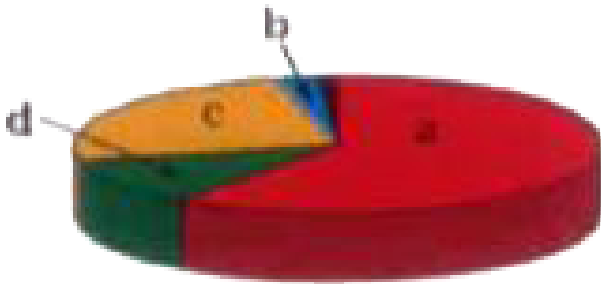
Label 'b' and give the name of processes to generate it.



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10. Carefully observe the given diagram/chart and answer the questions based on it.

(1) Observe the following pie-chart showing the major sources of energy.



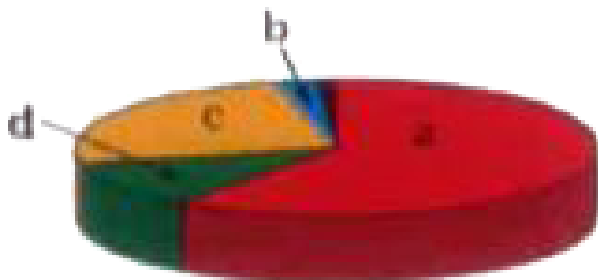
Label 'c' and state the name of any two place where such power plants are established.



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**11.** Carefully observe the given diagram/chart and answer the questions based on it.

(1) Observe the following pie-chart showing the major sources of energy.

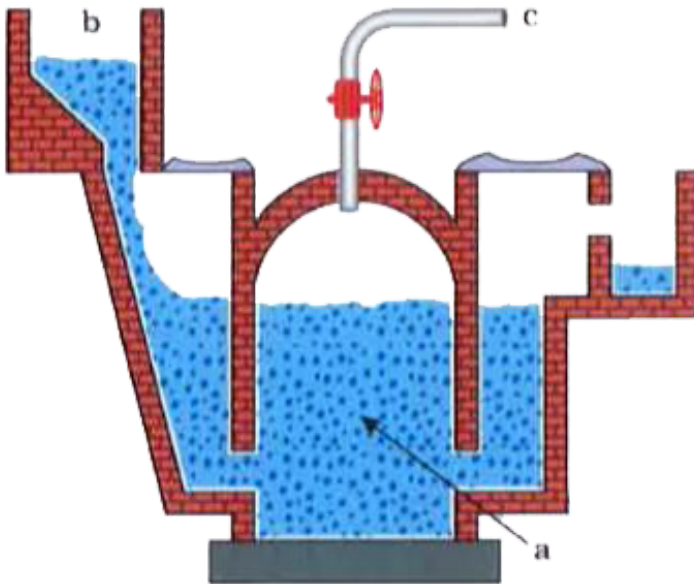


Refer to the pie-chart above and arrange the sources of energy in an ascending order.



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12. Carefully observe the given diagram/chart and answer the questions based on it.

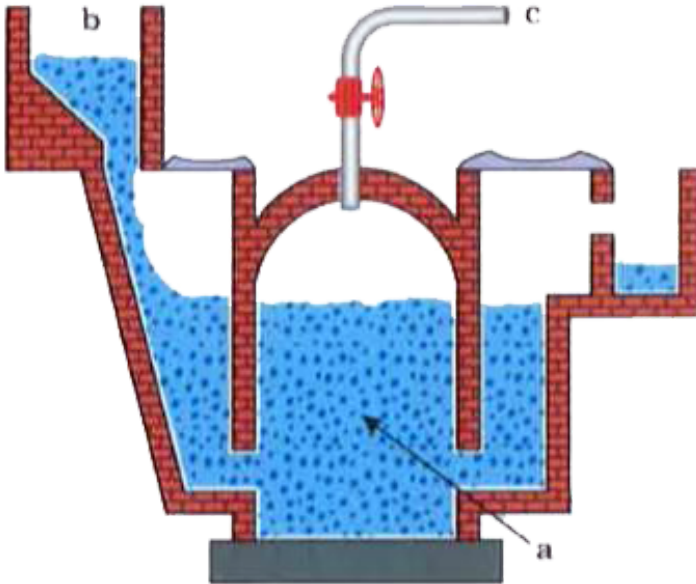


Label a, b and c in given diagram.



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**13.** Carefully observe the given diagram/chart and answer the questions based on it.



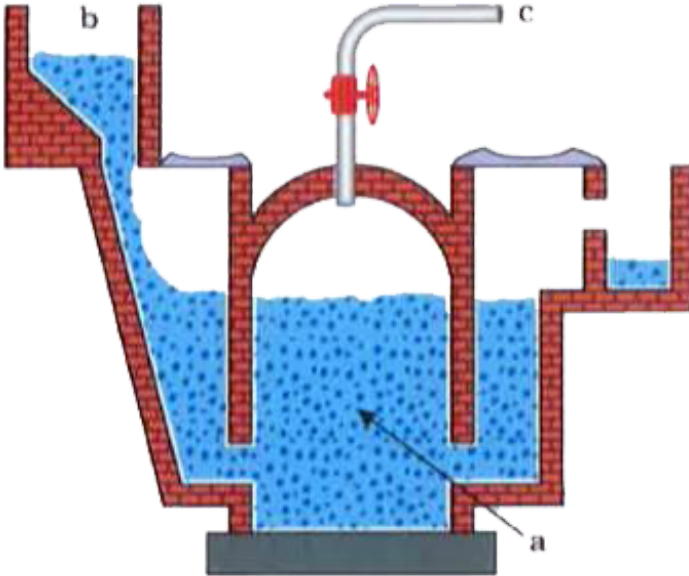
How is biogas obtained from slurry ?



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14. Carefully observe the given diagram/chart and answer the questions based on it.

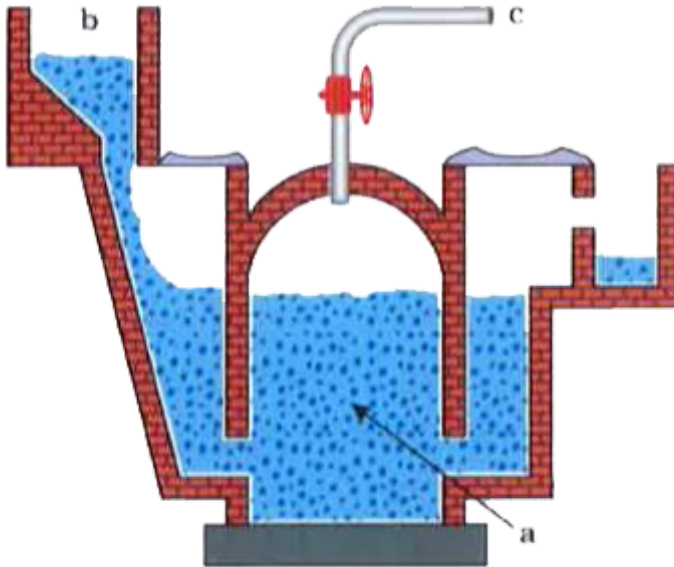


Why is biogas considered as an excellent fuel ?



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15. Carefully observe the given diagram/chart and answer the questions based on it.

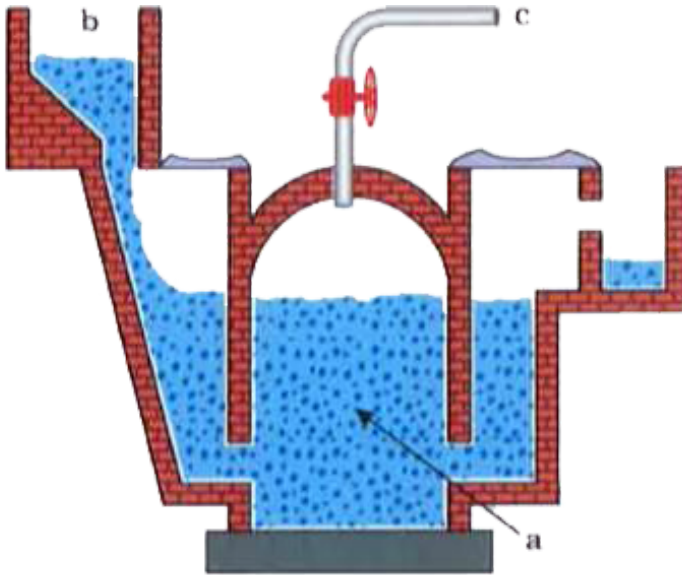


Which are the gases present in biogas ?



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16. Carefully observe the given diagram/chart and answer the questions based on it.

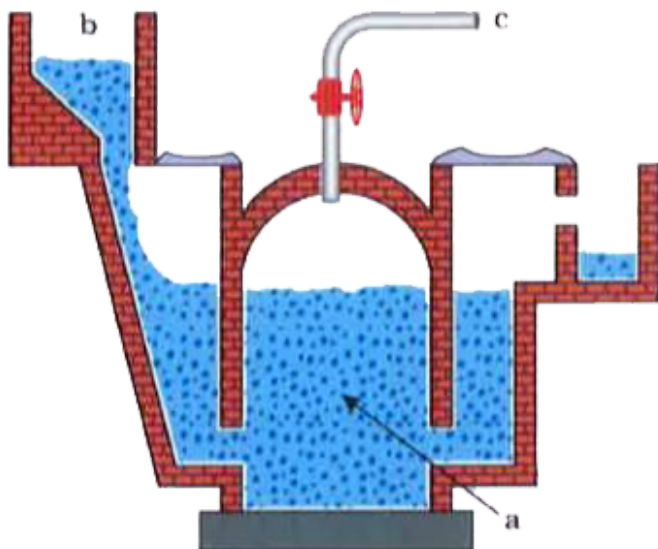


What are components of biogas ?



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17. Carefully observe the given diagram/chart and answer the questions based on it.



Which are abundant nutrients in the slurry left behind in a biogas plant?



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**18.** Carefully observe the given diagram/chart and answer the questions based on it.



Which metal is used in the panel for the interconnection of cells ?



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19. Carefully observe the given diagram/chart and answer the questions based on it.



Which energy conversion occurs by using solar cells ?



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**20.** Carefully observe the given diagram/chart and answer the questions based on it.



Write any two uses of solar cells for space science.



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21. Carefully observe the given diagram/chart and answer the questions based on it.



If 12 solar cells are interconnected in the

panel. How many watt of electricity can be produced from it when exposed to Sun ?



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**22.** Carefully observe the given diagram/chart and answer the questions based on it.



Why is silicon used in a solar cells ?



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## Objective Questions And Answers

1. Name the form of energy obtained from sea.



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2. Which fuel is considered as a cleaner source for vehicles ?



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3. State the name of fuels that we are using.



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4. What is a source of energy ?



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5. Which energy conversion occurs in a hydropower plant ?



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6. Which is a main constituent of biogas ?

What is its content ?



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7. What are the conventional sources of energy ?



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8. Name two elements that are used in manufacturing solar cell panels.



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9. Name the devices to harness solar energy.



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10. Where are the fossil fuels used directly ?



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11. Why is charcoal used as a fuel ?



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12. Why is the term thermal power plant used ?



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**13.** State the name of any two greenhouse gases.



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**14.** Which fuels leave residue like ash on burning ?



**Watch Video Solution**

**15.** How anaerobic microorganisms help in formation of fuel ?



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**16.** State two advantages of wind energy.



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**17.** What is the age of the sun ? What will be its expected lifespan ?



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**18.** Why demand on energy increasing day by day ?



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**19.** Where is solar cell panels are mounted for domestic use ? What is its advantages ?



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20. Name the two oxides that causes acid rain.



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21. What is the minimum speed of wind required by a windmill to maintain the necessary speed of turbine in electric generator ?



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**22.** Which are the renewable sources of energy ?



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**23.** Define : Explain the terms :

Nuclear fusion



**Watch Video Solution**

**24. Define : Explain the terms :**

Nuclear fusion



**Watch Video Solution**

**25. Define : Explain the terms :**

Solar constant



**Watch Video Solution**

**26. Define : Explain the terms :**

Geothermal energy



**Watch Video Solution**

**27. Define : Explain the terms :**

Biogas



**Watch Video Solution**

**28.** Define : Explain the terms :

Conventional sources of energy



**Watch Video Solution**

**29.** Define : Explain the terms :

Non-conventional sources of energy



**Watch Video Solution**



**30. Define : Explain the terms :**

Wind energy farm



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**31. Define : Explain the terms :**

Fossil fuels



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**32. Petroleum products are ..... fuel.**



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**33.** Hydropower plants convert the .....  
of falling water into electricity.



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**34.** When wood is burnt in a limited supply of  
Oxygen, ..... is left behind as a residue.



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**35.** Manure obtained from biogas plant is rich in ..... and .....



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**36.** ..... plant is an efficient method of bio waste disposal.



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**37.** ..... is the best process to capture solar energy and convert it into biomass.



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**38.** Use of ..... mirror would be best for in solar cooker.



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**39.** ..... is abundant in nature but availability of its special grade is limited.



**Watch Video Solution**

**40.** The hydrogen bomb is based on ..... reaction.



**Watch Video Solution**

**41.** India is ranked ..... in harnessing wind energy for the production of electricity.



**Watch Video Solution**

**42.** The total ..... of the universe remains constant because it can neither be created nor destroyed.



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**43.** The potential energy of flowing water gets transformed into kinetic energy by collecting the water in dam.



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**44.** In solar cookers, a plain mirror is used to converge the sunlight.



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**45.** Fossil fuels are the major fuels used for generating electricity.



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**46.** Submerged vegetation rots under anaerobic condition producing large amounts of methane.



**Watch Video Solution**



**47.** Biogas is derived totally from animal biomass.



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**48.** The level of water in the sea rises and falls due to the gravitational pull of the moon on the spinning earth.



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**49.** Nuclear energy is the best alternative of fossil fuel because of its environment friendly nature.



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**50.** The nuclear bomb is embedded in a deuterium and lithium containing substance.



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**51.** The assembly of the solar cell may be pollution free but the actual operation of it may cause some environmental harm.



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**52.** The energy sources that can be regenerated are called renewable energy sources.



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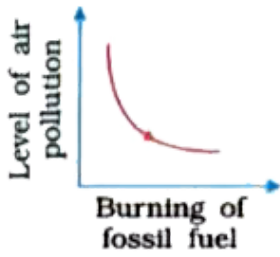
**53.** Nuclear fusion reactions are the source of energy in the sun and other stars.



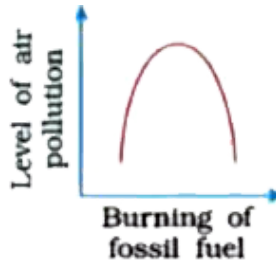
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**54.** Graph/diagram based question : Which of the following graph is correct for Burning of

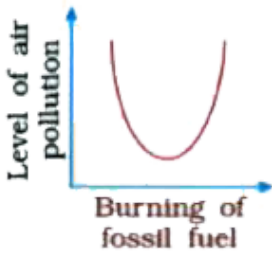
fossil fuel  $\rightarrow$  level of air pollution ?



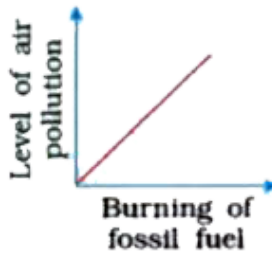
I



II



III



IV



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55. Match the following :

Column I	Column II
1. Silicon	a. nuclear reactor
2. Hot-springs	b. leaves residue like ash
3. Fission of uranium atom	c. used in solar cells
4. Charcoal	d. geothermal energy



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56. Match the following :

Column I	Column II
1. Fossil fuel	a. Plutonium, thorium
2. Biomass	b. coal, petroleum
3. Nuclear fuel	c. CNG
4. Clean fuel	d. wood, cow-dung cake



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57. Match the following :

Column I	Column II
1. Geothermal energy plant	a. Traffic signals
2. Solar cell panels	b. New Zealand
3. Wind energy farm	c. Tehri dam
4. Hydropower plant	d. Kanyakumari



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58. Which fuel is used in thermal power plant ?

A. Biomass

B. Fossil fuel

C. Wood

D. Charcoal

**Answer:**



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**59.** Which of the following is the adverse effect caused by burning of fossil fuels ?

A. Acid rain



B. Greenhouse effect

C. Both A and B

D. Agricultural land submerged

**Answer: A::B::D**



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**60.** Find greenhouse gases.

A. Hydrogen and hydrogen sulphide

B. Sulphure dioxide and nitrogen

C. Nitrogen and hydrogen

D. Methane and carbon dioxide

**Answer: A::B::C::D**



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**61.** Which of the following fuel does not leave ash-like residue while burning?

A. Wood

B. Charcoal

C. Biogas

D. Coal

**Answer: A::B**



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**62.** Which one of the following is a non-renewable source of energy ?

A. Bio fuel

B. Wind power

C. Fossil fuel

D. Tidal energy

**Answer:**



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**63.** Which of the following exploits energy due to temperature difference at surface water and water at depth ?

A. Tidal energy

B. Wave energy

C. Ocean thermal energy

D. All of the given

**Answer: A::C**



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**64.** Statement A: We need to look for more and more source of energy.

Reason R: There are only limited reserves of fossil fuels.

Which option is correct for statement A and reason R?

A. Both A and R correct, R is explanation of

A.

B. Both A and R correct, R is not explanation of A.

C. A is correct, R is incorrect.

D. A is incorrect, R is correct.

**Answer: A::B::C::D**



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**65.** Charcoal is considered a better fuel compared to wood because .....

A. it burns without flames.

B. it is comparatively smokeless.

C. It has a higher heat generation efficiency.

D. all of the given.

**Answer: A::B::C::D**





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66. From which of following, electricity can be generated without the use of turbine ?

- A. Solar energy
- B. Tidal energy
- C. Geothermal energy
- D. Wave energy

**Answer: A**



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67. Which is the fundamental reaction in nuclear weapon for destructive purposes ?

- A. Fusion chain
- B. Fission chain
- C. Radiation chain
- D. Thermal chain

**Answer: A::C**



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68. By which of the following greenhouse effect can be achieved in a solar cooker ?

- A. Black surface
- B. Concave mirror
- C. Convex mirror
- D. Covered glass plate

**Answer: A::C::D**



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69. Which one of following is used as a main source of energy in artificial satellite ?

A. Fossil fuel

B. Uranium

C. Solar cells

D. Gravitation pull

**Answer: A::C**



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70. Statement X: Ocean thermal energy conversion plant can operate the temperature difference is  $20^{\circ}C$  or more between the water at surface and water at depth.

Statement Y : Wind energy farm can generate electricity only if the wind speed should be higher than  $15km/h$ . Which is correct option for statement X and Y ?

A. X is correct, Y is incorrect.

B. Both X and Y are correct.

C. X is incorrect, Y is correct.

D. Both X and Y are incorrect.

**Answer: A::B::C::D**



**View Text Solution**

**71.** Which of the following is the ultimate source of energy on the earth ?

A. Solar

B. Wind

C. Ocean

D. Fossil fuel

**Answer: A**



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**72.** Which of the following is an environmental friendly source of energy?

A. Wind energy

B. Fossil fuel

C. Nuclear energy

## D. Solar energy

**Answer: A::D**



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**73.** Statement A: Many of the sources ultimately derive energy from the sun.

Reason R: Nuclear fusion reactions are the source of energy in the sun.

Which option is correct for statement A and reason R?

A. Both A and R correct, R is explanation of

A.

B. Both A and R correct, R is not explanation

C. A is correct, R is incorrect.

D. A is incorrect, R is correct.

**Answer: A::B::C::D**



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**74.** State the units of Solar constant Electricity.  
Energy.



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**75.** Find mismatched pair :

I Fossil fuel- Air pollution

II. Wind energy farm - Large area of land

III. Biogas - Aerobic microorganisms

IV. Geothermal energy- Hot springs



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**76.** Find correct sequence for following events

:

I. Winds to blow

II. Kinetic energy of huge waves near the sea-shore

III. Solar radiation

IV. Electricity generated

V. Waves generated



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**77.** Find mismatched pair :

I. Bio fuel - wood, cow-dung cake

II. Solar cell panel - Silicon, copper

III. Windmill - Large fan, turbine of generator

IV. Nuclear energy - Fission and Fusion  
reaction



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**78.** Sequentially arrange the events that occur  
in biogas plant.

p. activity of anaerobic microbes

q. The slurry left behind is used as manure

r. cow-dung and water is mixed and this slurry is fed into the digester

s. Methane gas is generated

t. Breakdown of complex compounds of the cow-dung slurry.



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**Objective Questions And Answers Fill In The Blanks**

1. Biogas obtained from decomposition of biomass by the activity of ..... microorganisms.



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## Objective Questions And Answers State Whether The Following Sentences Are True Or False

1. The air pollution is caused by burning of fossil fuels.



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## Objective Questions And Answers Select The Correct Alternative From Those Given Below Each Questions

1. Which of the following is a main component of biogas ?

A. Methane

B. Hydrogen

C. Hydrogen sulphide

D. Oxygen

**Answer: A**



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## Objective Questions And Answers Answer As Directed Miscellaneous

1. Write full form of CNG, OTEC: MeV



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**Value Based Questions With Answers**

1. Your father decided to fit CNG kit in his petrol car. Your mother is a working woman. Your father has managed their working time in such a way that he took your mother with him. Your school is just 3 km away from your home. Your father also insists you to use bicycle instead of fuel using vehicle for going to school.

Why CNG is preferred as a fuel ?



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2. Your father decided to fit CNG kit in his petrol car. Your mother is a working woman. Your father has managed their working time in such a way that he took your mother with him. Your school is just 3 km away from your home. Your father also insists you to use bicycle instead of fuel using vehicle for going to school.

Why we need to conserve fossil fuels ?



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3. Your father decided to fit CNG kit in his petrol car. Your mother is a working woman. Your father has managed their working time in such a way that he took your mother with him. Your school is just 3 km away from your home. Your father also insists you to use bicycle instead of fuel using vehicle for going to school.

What value is reflected in the above family ?



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4. Your father decided to fit CNG kit in his petrol car. Your mother is a working woman. Your father has managed their working time in such a way that he took your mother with him. Your school is just 3 km away from your home. Your father also insists you to use bicycle instead of fuel using vehicle for going to school.

State any two disadvantages of petrol as a fuel.



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5. A group of students visited to a village. They noticed that village people uses dung cakes, agricultural wastes, etc. as a fuel. Students found smoke and ash particles in the environment.

They requested the sarpanch to install a biogas plant and insist the people to collect the waste to produce biogas.

What is the use of slurry left behind ?



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6. A group of students visited to a village. They noticed that village people uses dung cakes, agricultural wastes, etc. as a fuel. Students found smoke and ash particles in the environment.

They requested the sarpanch to install a biogas plant and insist the people to collect the waste to produce biogas.

State the two uses of biogas.



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7. A group of students visited to a village. They noticed that village people uses dung cakes, agricultural wastes, etc. as a fuel. Students found smoke and ash particles in the environment.

They requested the sarpanch to install a biogas plant and insist the people to collect the waste to produce biogas.

What are the advantages of biogas plant ?



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**8.** In high rised residential flats, maintainance expense per month per flat is high. Some members suggested to install solar panel and solar water heater. They explained that this would provide some electricity to light the building and may reduce electric bill amount.

Which energy conversion is achieved by Installation of solar panel and solar water heater ?



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9. In high rised residential flats, maintainance expense per month per flat is high. Some members suggested to install solar panel and solar water heater. They explained that this would provide some electricity to light the building and may reduce electric bill amount.

What is the disadvantage of appliances which run on solar energy ?



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**Practical Skill Based Questions With Answers**



1. Two cars are parked in open parking area. One car is of black colour with black film on window glass. Other car is of white colour and without black film on window glass. You just open the door and sit for 1-2 minute in each car.

Which car is more hot inside ?



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2. Two cars are parked in open parking area. One car is of black colour with black film on

window glass. Other car is of white colour and without black film on window glass. You just open the door and sit for 1-2 minute in each car.

Do both the cars have warm internal environment ? Yes or no, why?



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**3.** Two cars are parked in open parking area. One car is of black colour with black film on window glass. Other car is of white colour and

without black film on window glass. You just open the door and sit for 1-2 minute in each car.

Why is black car more hotter than a white car ?



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4. Two cars are parked in open parking area. One car is of black colour with black film on window glass. Other car is of white colour and without black film on window glass. You just

open the door and sit for 1-2 minute in each car.

What are your suggestions to keep top floor cool in summer ?



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5.

A picture to demonstrate windmill and its function.

Which energy conversion is shown in the picture ?



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6.

A picture to demonstrate windmill and its function.

What function does windmill show in the picture ?



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7.

A picture to demonstrate windmill and its



function.

Which is the structure similar to windmill ?



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