PHYSICS

BOOKS - ICSE

HEAT AND ENERGY

Exercise 6 A

1. What is heat ? State its S.I. unit

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2. Two bodies at different temperatures are placed in contact. State the direction in which the heat will flow.

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3. Name the S.I. unit of heat. How is it related to the unit calorie?

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4. Define temperature. What is its Sl unit?

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5. Why does a piece of ice when touched with hand, appear cool? Explain

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6. Write the difference between heat and temperature .

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7. What do you understand by thermal expansion ofa substance?

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8. Name two subtances which expand on heating.

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9. Name two substances which contract on heating.

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10. What do you mean by anomalous expansion of water?

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11. At what temperature the density of water is maximum? State its value.

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12. State the volume changes observed when a givenmass of water is heated from $0^{\circ}C$ to $10^{\circ}C$. Sketch a temperature volume graph to show the behaviour.

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13. Draw a graph to show the variation in density of water with temperature in the temperature range from $0^{\circ} C$ to $10^{\circ} C$.

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14. A given mass of water is cooled from $10^{\circ} C$ to $0^{\circ} C$. State the volume changes observed. Represent these changes on a temperature volume graph.

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15. Describe an experiment to show that water has maximum density at 4°. What important cosequences follow from this peculiar property of water? Discuss the importance of this phenomenon in nature.

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16. Deep pond of water has its top layer frozen during winter. State the expected temperature

of water layer (i) just in contact withice (ii) at the bottom of pond.

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17. Draw a diagram showing the temperature of various layers of water in an ice covered pond.

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18. Explain the following:

Water pipes in colder countries often burst in winter.

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19. Explain the following:

In winter, water tank (or ocean) starts freezing from the surface and not the bottom.

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20. Explain the following:

Fishes survive in ponds even when the atmospheric temperature is below $0^{\circ} C$.

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21. Explain the following:

A hollow glass sphere which floats with its entire volume submerged in water at $4^{\circ} C$, sinks when water is heated abover $4^{\circ} C$.

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22. Explain the following:

A glass bottle completely filled with water and tightly closed at room temperature, is likely to burst when kept in the freezer of a refrigerator.

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Exercise 6 A Multiple Choice Question

1. Calorie is the unit of

A. heat

B. work

C. temperature

D. food

Answer: A::C::D

2. 1 J equals to

A. 0.24cal

B. 4.18cal

C. 1cal

D. 1kcal

Answer: A::C::D

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3. S.I. unit of temperature is

A. cal

B. joule

C. celsius

D. kelvin

Answer: D

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4. Water is cooled from $4^\circ C$ to $0^\circ C$ it:

A. contracts

B. expands

C. first contracts, then expands

D. first expands, then contracts

Answer: A::B

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5. Density of water is maximum at

A. $0^\circ C$

B. $100^\circ C$

C. $4^\circ C$

D. $15^\circ C$

Answer: C

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Exercise 6 B

1. What is an ecosystem? Name its two components.

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2. What is the source of energy for all ecosystems?

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3. State the importance of green plants in an ecosystem.

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4. Differentiate between the producers and consumers.

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5. State the functions of decomposers in an ecosystem.

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6. What is a food chain?

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7. Draw a simple diagram showing a food chain.

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8. Energy flow in an ecosystem is

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9. State the law which governs the energy flow in an ecosystem.

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10. Energy flow in an ecosystem is

Watch Video Solution

11. Draw a simple diagram showing the energy flow in a food chain.

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12. Draw a diagram to show that the energy flow is an ecosystem is governmend by the law of conservation of energy.

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Exercise 6 B Multiple Choice Question

1. Food chain begins with

A. respiration

B. photosynthesis

C. decomposition

D. decay

Answer: A::B

2. The source of energy in an ecosystem is

A. sun

B. decayed bodies

C. green plats

D. sugar

Answer: A::C::D

3. Energy enters in a food chain through:

A. primary consumers

B. secondary consumers

C. tertiary consumers

D. producers

Answer: D

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4. The place of human being in food chainin an ecosystem is as a:

A. producer

B. consumer

C. decomposer

D. both a and b

Answer: A::B

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Exercise 6 C

1. State two characteristics which a source of energy must have.

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2. Name the two groups in which various sources of energy are calssified. State on what basis are they classified.

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3. What is meant by renewable and non renewable sources of energy? State two differences between them, giving two examples of each.

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4. Select the renewable and non renewable sources o energy from the following:

a. Coal b. Wood c. Water

d. Diesel e. Wind f. Oil

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5. Why is the use of wood as a fuel not advisable although wood is a renewable source of energy?

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6. Name five renewable and three non - renewale sources of energy.

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7. What is (i) tidal, (ii) ocean and (iii) geo thermal energy? Explain in brief.

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8. What is the mainsource of energy for the earth?

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9. What is solar energy? How is solar energy used to generate electricity in a solar power plant?

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10. What is a solar cell? State two uses of solar cells. State whether solar cell produces a.c. or d.c. Give one disadvantage of using a solar cell.

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11. State two advantages and two limitations of producing electricity from solar energy.

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12. What is wind energy? How is wind energy used to produce electricity? How much electric power is generated in India using wind energy?

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13. State two advantages and two limitations of using wind energy for generating electricity.

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14. What is hydro energy? Explain the principle of genrating electricity from hydro energy. How much hydro electric power is generated in India?

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15. State two advantages and two disadvantages of producing hydro electricity.

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16. What is nuclear energy? Name the process used for producing electricity using the nuclear energy

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17. What percentage of total electrical power generated in India is obtained from nuclear power plants? Name two obtained from nuclear power plants? Name two places in India where electricity is generated from nuclear power plants.

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18. State two advantages and two disadvantages of using nuclear energy for producing electricity.

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19. State the energy transformation in the following:

(i) electricity is obtained from solar energy.

(ii) electricity is obtained from wind energy.

(iii) electricity is obtained from hydro energy.

(iv) electricity is obtained from nuclear energy.

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20. State four ways for the judicious use of energy.

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21. What do you mean by degradation of energy? Explain it by taking two examples of

your daily life.

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22. The conversion of part of energy into an unuseful form of energy is called.....

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Exercise 6 C Multiple Choice Question

1. The ultimate source of energy is

A. wood

B. wind

C. water

D. sun

Answer: D

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2. Renewable source of energy is

A. coal

B. fossil fuels

C. natural gas

D. sun

Answer: D

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Exercise 6 D

1. What do you mean by green house effect?

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2. Name three green house gases.

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3. Which of the following solar radiations pass through the atmosphere of earth ?

X-rays, ultraviolet rays, visible light rays, infrared radiation.

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4. What results in the increase of carbon dioxide contents of earth.s atmosphere?

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5. Name the radiations which are absorbed by the green house gases in the earth's atmosphere.

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6. What would have ben the temperature of earth's atmosphere in absence of green house gases in it?

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7. State the effect of green house gases on the temperature of earth's atmosphere.

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8. What do you mean by global warming?

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9. What causes the rise in atmospheric temperature?

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10. State the cause of increase of green house effect.

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11. What will be the effect of global warming at the poles?

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12. State the effect of global warming in coastal regions.

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13. How will global warming affect the sea level?

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14. How will global warming affect agriculture?

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15. State two ways to minimise the impact of global warming.

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16. What is carbon tax? Who will pay it?

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Exercise 6 D Multiple Choice Question

1. The green house gas is:

A. oxygen

B. nitrogen

C. chlorine

D. carbon dioxide

Answer: D

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2. The increase of carbon dioxide gas in atmosphere will cause

A. decrease in temperature

B. increase intemperature

C. no change in temperature

D. increase in humidity

Answer: A::B

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3. Without green house effect, the average temperature of earth's surface would have been

A. $-18^{\circ}C$

B. $33^\circ C$

C. $0^\circ C$

D. $15^\circ C$

Answer: A::C::D

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4. The global warming has resulted in

A. the increase in yield of crops

B. the decrease in sea levels

C. the decrease in human deaths

D. the increase in sea levels

Answer: D

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Topic 1 Concepts Of Heat And Temperature 2 Marks Questions

1. What do you understand by temperature? Write its SI units.

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Topic 1 Concepts Of Heat And Temperature 2 Marks Questions

1. What is anomalous expansion of water?

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2. Which experiment is generally used to demonstrate the anomalous expansion of water.

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Topic 1 Concepts Of Heat And Temperature 3 Marks Questions

1. The diagram below shows a frozen pond in a cold regions

(i)State the expected temperatures at A and B.

(ii)Name the phenomenon responsible for the temperature mentioned in part (i).

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2. Write the difference between heat and temperature .

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3. Write four effects which heat can produce on a body.

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4. State the volume changes observed when a givenmass of water is heated from $0^{\circ}C$ to $10^{\circ}C$. Sketch a temperature volume graph to show the behaviour.

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Topic 1 Concepts Of Heat And Temperature 4 Marks Questions

1. Why a glass bottle completely filled with water and tightly closed at room temperature

is likely to burst when kept in the freezer of a refrigerator.

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2. Describe an experiment to show that water has maximum density at $4^{\circ} C$.

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Topic 2 Global Warming And Green House Effect 2 Marks Questions

1. State two human activities which are responsible for the increase of carbon dioxide gas in the atmosphere.

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2. What do you mean by green house effect?

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3. Name three green house gases.

Watch Video Solution

4. Which of the following solar radiations pass through the atmosphere of earth ?

X-rays, ultraviolet rays, visible light rays, infrared radiation.

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5. What results in the increase of carbon dioxide contents of earth.s atmosphere?

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Topic 2 Global Warming And Green House Effect 3 Marks Questions

1. Write the different ways to minimize the impact of global warming

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2. What is the effect of global warming in the earth.

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3. What will be the effect of global warming at the poles?

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