



PHYSICS

BOOKS - SURA PUBLICATION

Heat

Exercise

1. If you apply some heat energy to a substance, which of the following can take place in it?

A. expansion

B. Increase in temoerrature

C. Change of state

D. All the above

Answer:



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2. Which of the following substances will absorb more hert energy?

A. Solid

B. Liquid

C. Gas

D. All the above

Answer:



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3. If you apply equal amount of heat to a solid, liquid and gas individually, which of the following will have more expansion?

A. Solid

B. Liquid

C. Gas

D. All of them

Answer:



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4. The process of converting a liquid into a solid called_____.



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5. Conduction is the heat transfer which takes place in a _____.



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6. A calorimeter is a device used to measure the _____.



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7. _____ is defined as the amount of heat required to raise the temperature of 1 kg of a substance by $1^{\circ}C$.



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8. A thermostat is a device which maintains_____.



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9. The process of converting a substance from gas to solid is called_____.



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10. If you apply heat energy, the temperature of a system will_____.



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11. If the temperature of a liquid in a container is decreased, then the interatomic distance will _____.



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12. Match the following

IV. Match the following :

- | | |
|-----------------|-------------------|
| 1. Conduction | (a) Liquid |
| 2. Convection | (b) Gas to liquid |
| 3. Radiation | (c) Solid to gas |
| 4. Sublimation | (d) Gas |
| 5. Condensation | (e) Solid |



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13. 1 calorie =..... joule.

A. $0.42J$

B. $4.2J$

C. 420 J

D. 4200 J

Answer:



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14. The unit of heat is

A. joule

B. calorie

C. kilo calorie

D. none of these

Answer:



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15. Which of the following is not a scale of temperature?

A. Kelvin scale

B. Celsius scale

C. Richter scale

D. Fahrenheit scale

Answer:



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16. Convection of heat takes place in _____

- A. liquids only
- B. gases only
- C. metals only
- D. liquids and gases

Answer:



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17. In solid substances, heat is transferred by

A. conduction

B. radiation

C. convection

D. only a and b

Answer:



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18. In conduction, heat flows from_____

A. hotter to hotter region

B. colder to hotter region

C. hotter to colder region

D. colder to colder region

Answer:



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19. Mud houses are cooler in summer and warmer in winter because

A. mud is a bad conductor of heat

B. mud is a good conductor of heat

C. mud is a super conductor of heat

D. none

Answer:



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20. process of change of state from gaseous state to liquid state is called _____

A. freezing

B. condensation

C. sublimation

D. boiling

Answer:



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21. Substances which allow heat to pass through them are called_____

A. conductors

B. insulators

C. conduction

D. none

Answer:



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22. When two objects are in thermal contact, the heat is transferred by _____.

A. convection

B. radiation

C. conduction

D. none

Answer:



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23. In vacuum, heat energy can travel by the process of ____.



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24. In ice cubes the force of attraction between the water molecules is _____.



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25. when we heat water, the force of attraction decreases and the ice cubes becomes_____.



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26. _____ is the only matter on the Earth that can be found naturally in all three states.



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27. Radiation is defined as the heard transfer from one place to another in the form of_____.



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28. Define heat capacity .



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29. 1 calorie =..... joule.



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30. Specific heat capacity $C = \underline{\hspace{2cm}}$.



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31. The device which is used to measure the heat capacity of the liquid is _____.



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32. _____ is a device which maintains the temperature of a place or an object constant.



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33. The vacuum flask was invented by _____.



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34. The vacuum flask is also called as _____.



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35. The water in the black can becomes _____ than that in whitw can after exposing to the sun.



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36. The handles of cooking utensils are made of _____.



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37. Black colour is a _____ absorber of heat.



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38. Match the following

1.	Heat	(a)	Good absorber
2.	Temperature	(b)	Form of energy
3.	Black surface	(c)	Insulators
4.	Rubber, cork	(d)	Measure of hotness or coldness



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39. Match the following

1.	Specific heat capacity	(a)	Dewar bottle
2.	Calorimeter	(b)	Lavoisier and simon
3.	Vacuum flask	(c)	$\text{J Kg}^{-1} \text{K}^{-1}$
4.	Ice - calorimeter	(d)	Heat capacity



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40. Match the following

1.	Conduction	(a)	liquids and gases
2.	Convection	(b)	Poor conductor
3.	Radiation	(c)	Solids
4.	Snow	(d)	Vacuum



41. Match the following

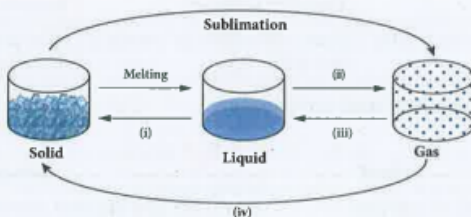
1.	Solid to liquid	(a)	Condensation
2.	Liquid to gas	(b)	Deposition
3.	Gas to solid	(c)	Melting
4.	Gas to liquid	(d)	Vapourisation



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42. Picture based questions:

Picture based Questions:





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43. Convection of heat takes place in _____

- A. liquids only
- B. gases only
- C. metals only
- D. liquids and gases

Answer:



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44. Heat is from of ____.

- A. electrical energy
- B. gravitational energy
- C. thermal energy
- D. none of these

Answer:



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45. Which of the following substances will absorb more heat energy?

A. Solid

B. Liquid

C. Gas

D. All the above

Answer:



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46. The process of converting a substance from solid to gas is called condensation.



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47. The device which is used to measure the heat capacity of the liquid is _____.



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48. If you apply heat energy, the temperature of a system will _____.



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49. In vacuum, heat energy can travel by the process of ____.



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50. The transfer of heat by radiation does not require any medium.



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51. When ice changes into a liquid, it absorbs energy.



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52. Water has the lowest specific capacity.



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53. Write a note on convection.



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54. What are the effects of hert?



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55. You would have noticed some space being left in railway tracks.Why?



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56. An iron ball requires 1000 J of heat to raise its temperature by $20^{\circ}C$. Calculate the heat capacity of the ball.



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57. Can conversation take place in solids?
Why?



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58. Explain the working of thermos flask with a diagram.



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59. Distinguish between conduction, convection, and radiation.



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Example

1. The applied heat energy can be realized as an increase in the average kinetic energy of the molecules.



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2. The dimensions of a substance are increased if the temperature of the substance is decreased.



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3. The process of converting a substance from solid to gas is called condensation.



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4. Convection is the process by which the thermal energy flows in solids.



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5. The amount of heat gained by a substance is equal to the product of its mass and latent

heat .



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6. In a thermos flask, the silvered walls reflect and radiate the heat to the outside.



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7. Assertion & Reason: Direction: Mark the correct choice as Assertion: Radiation is a form of heat transfer which takes place even in

vacuum. Reason: The thermal energy is transferred from one part of a substance to another part without the actual movement of the atoms or molecules.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true , but reason is not correct explanation of the assertion.

C. If the assertion is true, but the reason is false.

D. If the assertion is false, but the reason is true.

Answer:



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8. Assertion & Reason: Direction: Mark the correct choice as: Assertion: A system can be converted from one state to another state.

Reason: It takes place when the temperature of the system is constant.



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9. What are the applications of conduction in our daily life?



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10. What are the effects of heat?



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11. Name three types of heat transfer.



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12. What is conduction?



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13. Write a note on convection.



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14. Define specific heat capacity and give its unit .



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15. Define one calorie.



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16. With the help of a neat diagram explain the working of a calorimeter.



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17. Write a note on thermostat.



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18. Explain the working of thermos flask with a diagram.



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19. Why does the bottom of a lake not freeze in severe winter even when the surface is all frozen?



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20. Which one of the following statements about thermal conductivity is correct? Give reason.

A. steel>wood>water

B. steel>water>wood

C. water>steel>wood

D. water>wood>steel

Answer:



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21. An iron ball requires 1000 J of heat to raise its temperature by $20^{\circ}C$. Calculate the heat capacity of the ball.



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22. The heat capacity of the vessel of mass 100 kg is $8000 \text{ J}/^\circ\text{C}$. Find its specific heat capacity.



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23. Heat is the transfer of energy between two objects with different temperature.



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24. When ice changes into a liquid, it absorbs energy.



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25. Heat energy flows from a body at low temperature to a body at higher temperature.



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26. $J/Kg^{\circ}C$ is the unit of specific heat capacity.



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27. Conductors have generally high specific heat capacities and insulators have low specific heat capacities.



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28. Temperature is a measure of total kinetic energy of the particles in a system.



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29. When a liquid evaporates. it gives off energy.



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30. when a liquid boils, energy is absorbed.



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31. What has the lowest specific heat capacity.



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32. While a substance is undergoing a change of state, the temperature of the body remains the same.



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33. In summer, we prefer light- coloured clothes and in winter we usually wear dark- coloured clothes.



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34. The transfer of heat by radiation does not require any medium.



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35. Metals like copper, heat by radiation does not require any medium.



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36. in thermos flask, the bacuum between the two walls prevents heat from the inside to the outside by radiation.



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37. Thermostat is a device can measure the heat capacity of the liquid in the container.



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38. Assertion and Reason. Mark the correct choice as:
Assertion : When a very hot liquid is poured into a thick glass tumbler it cracks.
Reason : Unequal expansion of the inner and outer glass walls causes the glass to crack.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true , but reason is not the correct explanation of the assertion.

C. If the assertion is true, but the reason is false.

D. If the assertion is false, but the reason is true.

Answer:



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39. Assertion and Reason. Mark the correct choice as: Assertion :Radiation is a process of trasfer of heat in which a material medium is not necessary. Reason : The heat from the sun reaches us through millions of miles of empty space by convection.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true , but reason is not the correct explanation of the assertion.

C. If the assertion is true, but the reason is false.

D. If the assertion is false, but the reason is true.

Answer:



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40. Assertion and Reason. Mark the correct choice as: Assertion: Temperature is the measure of the heat energy. Reason: Energy is the capacity to do work.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true ,
but reason is not the correct
explanation of the assertion.

C. If the assertion is true, but the reason is
false.

D. If the assertion is false, but the reason is
true.

Answer:



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41. Assertion and Reason. Mark the correct choice as:
Assertion: Small gaps left between railway lines.
Reason It allows for contraction of rails during summer.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true , but reason is not the correct explanation of the assertion.

C. If the assertion is true, but the reason is false.

D. If the assertion is false, but the reason is true.

Answer:



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42. Write the relation between joule and calorie.



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43. Mention the factors affecting the flow of heat.



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44. What is principle of calorimetry ?



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45. What are the various mode of transfer of heat?



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46. Which colour absorb heat radiation and which colour reflects heat radiation?



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47. SI unit of specific heat capacity is..... .



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48. SI unit of specific heat capacity is..... .



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49. What is the function of a thermostat in a device?



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50. Name some appliances which uses thermostat.



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51. What is the function of silvered wall in a thermos flask?



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52. You would have noticed some space being left in railway tracks.Why?



Watch Video Solution

53. What is transfer of heat?



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54. Mention the applications of convection in daily life.



Watch Video Solution

55. Write a note on radiation.



Watch Video Solution

56. Mention the applications of radiation in daily life.



Watch Video Solution

57. Why do we wear wollen clothes in winter?



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58. Can conversation take place in soilds?

Why?



[Watch Video Solution](#)

59. Distinguish between heat capacity and specific heat capacity.



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60. Arrange the following in order of decreasing expansion of heating: Steel, milk, air.



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61. Distinguish between evaporation and vapourisation.



[Watch Video Solution](#)

62. Describe an experiment to prove the solids expands on heating and contract on cooling.



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63. Write a note on radiation.



Watch Video Solution

64. Distinguish between conduction, convection, and radiation.





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65. Distinguish between heat and temperature.



[Watch Video Solution](#)

66. What is the rise in temperature of 5 kg of water if it is given 84,000 J heat energy?

Specific heat capacity of water

$$= 4200 \text{ J kg}^{-1} \text{ } ^\circ\text{C}^{-1}.$$



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67. A body of mass 750 g requires 13,500 J of heat energy in order to raise its temperature from $25^{\circ}C$ to $55^{\circ}C$. Calculate its specific heat capacity.



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68. An iron ball requires 9000 J heat energy to raise its temperature by $10^{\circ}C$. Calculate the heat capacity of the iron ball.



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