NDA-CDS 1 2025

GS

LIVE

PHYSICS

HEAT TRANSFER

MCQS

NAVJYOTI SIR

SSBCrack EXAMS

06 Feb 2025 Live Classes Schedule

9:00AM	06 FEBRUARY 2025 DAILY DEFENCE UPDATES	DIVYANSHU SIR
10:00AM	06 FEBRUARY 2025 DAILY CURRENT AFFAIRS	RUBY MA'AM

SSB INTERVIEW LIVE CLASSES

9:30AM	OVERVIEW OF OIR & PRACTICE	ANURADHA MA'AM

AFCAT 1 2025 LIVE CLASSES

12:30PM	REASONING COMBINED MCQS	RUBY MA'AM
3:00PM	STATIC GK - NATIONAL PARKS & WILDLIFE SANCTUARIES	DIVYANSHU SIR
4:30PM	ENGLISH - IDIOMS & PHRASES - CLASS 3	ANURADHA MA'AM
5:30PM	MATHS - MENSURATION 2D - CLASS 2	NAVJYOTI SIR

NDA 1 2025 LIVE CLASSES

10:00AM	MATHS - SEQUENCE & SERIES - CLASS 1	NAVJYOTI SIR
11:30AM	POLITY - CLASS 1	RUBY MA'AM
1:00PM	PHYSICS - HEAT TRANSFER	NAVJYOTI SIR
4:30PM	ENGLISH - IDIOMS & PHRASES - CLASS 3	ANURADHA MA'AM

CDS 1 2025 LIVE CLASSES

11:30AM	POLITY - CLASS 1	RUBY MA'AM
1:00PM	PHYSICS - HEAT TRANSFER	NAVJYOTI SIR
4:30PM	ENGLISH - IDIOMS & PHRASES - CLASS 3	ANURADHA MA'AM
5:30PM	MATHS - MENSURATION 2D - CLASS 2	NAVJYOTI SIR

HEAT TRANSFER - MCQs

Thermal capacity of a body depends on the

(a) mass of the body only ✓

(b) mass and shape of the body only ✗

(c) density of the body ✗

(d) mass, shape and temperature of the body ✗

Thermal capacity = mass × specific heat

fixed for a given substance,

acts as a constant

Thermal capacity of a body depends on the

(a) mass of the body only

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(c) density of the body

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ANSWER : (A)

In which of the following phenomena do heat waves travel along a straight line with the speed of light ?

(a) Thermal conduction

(b) Thermal convection

(c) Thermal radiation

(d) Both, thermal conduction and radiation

Heat waves travel with speed of light

In which of the following phenomena do heat waves travel along a straight line with the speed of light ?

(a) Thermal conduction

(b) Thermal convection

(c) Thermal radiation

(d) Both, thermal conduction and radiation

ANSWER : (C)

Which of the following statements about specific heat of a body is/are correct ?

1. It depends upon mass and shape of the body
2. It is independent of mass and shape of the body
3. It depends only upon the temperature of the body

Select the correct answer using the code given below :

(a) 1 only

(b) 2 and 3

(c) 1 and 3

(d) 2 only

specific heat for a body has a fixed value. ⟶ acts as a constant.

Which of the following statements about specific heat of a body is/are correct ?

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2. It is independent of mass and shape of the body
3. It depends only upon the temperature of the body

Select the correct answer using the code given below :

(a) 1 only

(b) 2 and 3

(c) 1 and 3

(d) 2 only

ANSWER : (D)

Which of the following represents a relation for 'heat lost = heat gained'?

(a) Principle of thermal equilibrium

(b) Principle of colors

(c) Principle of calorimetry

(d) Principle of vaporization

Which of the following represents a relation for 'heat lost = heat gained'?

(a) Principle of thermal equilibrium

(b) Principle of colors

(c) Principle of calorimetry

(d) Principle of vaporization

ANSWER : (C)

Which one among the following statements with reference to the properties of water is ***not*** correct ?

(a) The specific heat of water is abnormally high.

(b) Latent heat of fusion of water is very low.

(c) Density of water is higher than ice.

(d) Pure water is a non-conductor of electricity.

(c) ice floats on water — ✓

(d) Pure water does not contain any ions. So, it doesn't conduct electricity.

Latent heat of fusion of water is high.

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ANSWER : (B)

On a day when I am in hurry to go to office, I have a fixed quantity of rice which was just cooked and kept in a bowl. In order to cool it quickly, which one of the following is the best option?

(a) Let it be kept on the table in a room where there is no fan, no air conditioner

(b) Let it be kept in a room with AC set at a temperature around 23 °C and a ceiling fan (or table fan) operating at slow speed

(c) Let it be kept in a bowl of water (at room temperature) and operating a ceiling fan (or table fan) at full speed

(d) Let it be kept in a bowl of water at room temperature only

evaporation $\propto$ wind speed

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(d) Let it be kept in a bowl of water at room temperature only

ANSWER : (C)

Which one of the following heat transfers is an example of convection ?

(a) Heating of food in a microwave oven

(b) Boiling water in a pot on a gas stove

(c) Feeling the warmth in sun

(d) Heating a brass rod at one end and observing the temperature rise at the other end

fluids ⟶ convection

liquids, gases,

Radiation

convection

Radiation

conduction

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(c) Feeling the warmth in sun

(d) Heating a brass rod at one end and observing the temperature rise at the other end

ANSWER : (B)

Which one of the following statements best defines the concept of heat ?

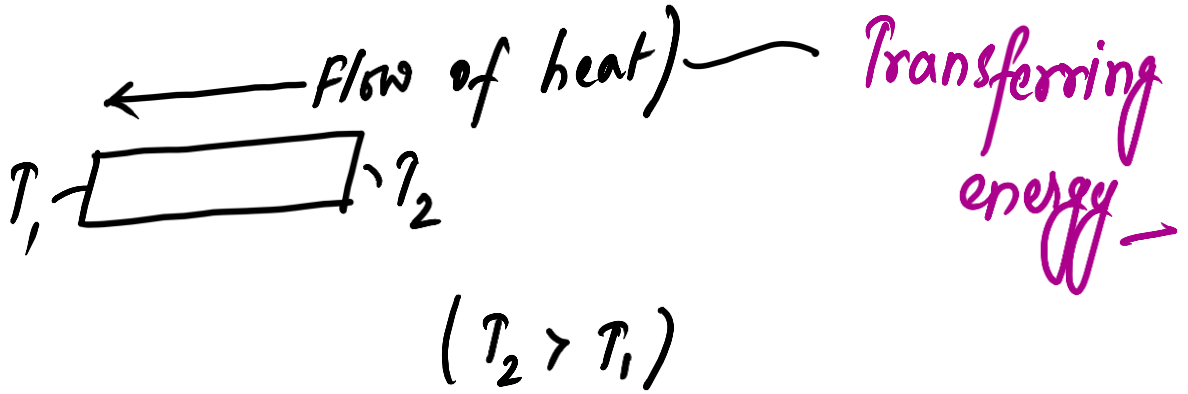
(a) The transformation of energy from one form to another

(b) The conversion of energy into mass and vice-versa due to temperature difference

(c) The transfer of energy due to temperature difference

(d) The change in volume of a substance with temperature

Heat



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(c) The transfer of energy due to temperature difference

(d) The change in volume of a substance with temperature

ANSWER : (C)

Given below are the four cases in which certain heat transfer is taking place :

1. Ice is melting in a glass full of water
2. Water is boiling in an open container
3. A metal rod is heated in a furnace
4. A cup of coffee is allowed to cool on a table

In which of the above cases, the Newton's Law of Cooling is applicable ?

(a) 1 only

(b) 4 only ✓

(c) 1 and 4 only

(d) 1, 2 and 3

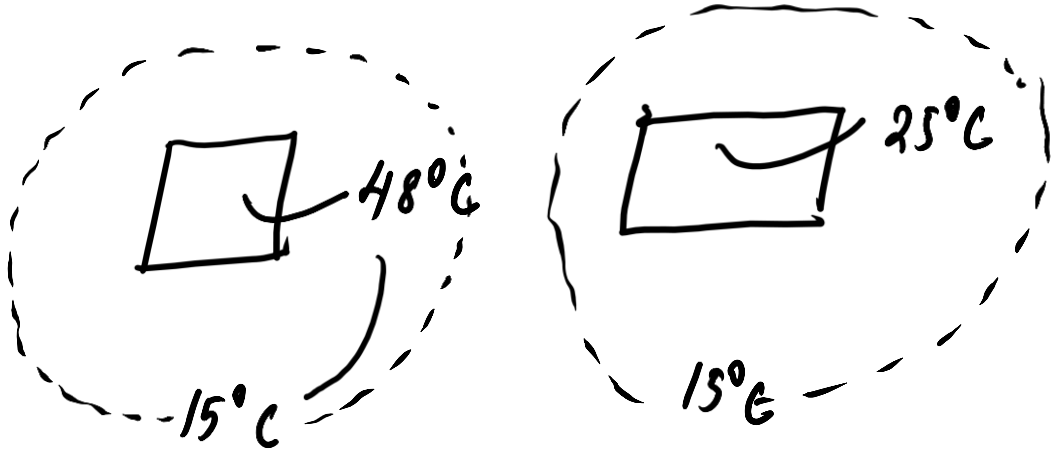
Temp. ↑

Temp. ↑

Temp. ↑

Temp. ↓

$\left(\frac{dT}{dt} \propto T - T_0\right)$



Faster cooling

Slower cooling

Given below are the four cases in which certain heat transfer is taking place :

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In which of the above cases, the Newton's Law of Cooling is applicable ?

(a) 1 only

(b) 4 only

(c) 1 and 4 only

(d) 1, 2 and 3

ANSWER : (B)

Which of the following statements about latent heat for a given substance is/are correct ?

1. It is fixed at a given temperature. ✓
2. It depends upon the temperature and volume. ✗
3. It is independent of temperature and volume. ✗
4. It depends on the temperature but independent of volume. ✓

Select the correct answer using the code given below :

(a) 2

(b) 1 and 3

(c) 4 only

(d) 1 and 4 ✓

q — no dependence of volume

Latent heat depends on temperature but is independent of volume.

Which of the following statements about latent heat for a given substance is/are correct ?

1. It is fixed at a given temperature.
2. It depends upon the temperature and volume.
3. It is independent of temperature and volume.
4. It depends on the temperature but independent of volume.

Select the correct answer using the code given below :

(a) 2

(b) 1 and 3

(c) 4 only

(d) 1 and 4

ANSWER : (D)

When a solid is heated, it turns directly into a gas. This process is called

(a) Condensation
(b) Evaporation
(c) Sublimation
(d) Diffusion

Camphor / Naphthalene balls

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(a) Condensation
(b) Evaporation
(c) Sublimation
(d) Diffusion

ANSWER : (C)

The absolute zero, i.e. temperature below which is not achievable, is about

(a) 0°C
(b) – 275 °C
(c) – 273 °C
(d) – 300 °C

Kelvin ⟶ − 273 °C

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(a) 0°C
(b) – 275 °C
(c) – 273 °C
(d) – 300 °C

ANSWER : (C)

The temperature at which a solid melts to become a liquid at the atmospheric pressure is called its melting point. The melting point of a solid is an indication of

(a) strength of the intermolecular forces of attraction
(b) strength of the intermolecular forces of repulsion
(c) molecular mass
(d) molecular size

melting point ⟶ attractive forces between molecules

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(a) strength of the intermolecular forces of attraction
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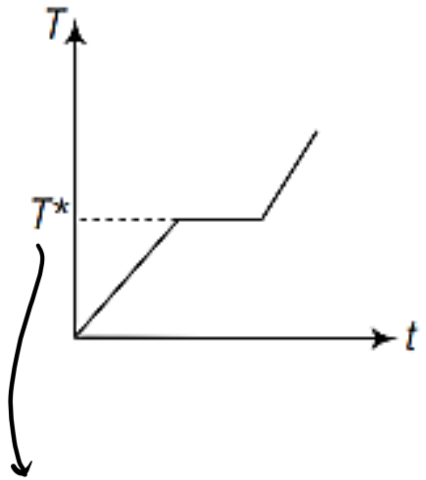
(d) molecular size

ANSWER : (A)

The figure given below shows the temperature (T)-time (t) plot when we start heating a piece of naphthalene. The temperature (T^*) at the plateau of the curve signifies



(a) boiling point of naphthalene
(b) freezing point of naphthalene
(c) melting point of naphthalene ✓
(d) the temperature when naphthalene undergoes a chemical change upon heating

T^* corresponds to state change.

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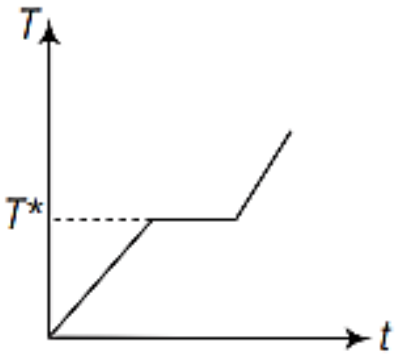

(a) boiling point of naphthalene
(b) freezing point of naphthalene
(c) melting point of naphthalene
(d) the temperature when naphthalene undergoes a chemical change upon heating

ANSWER : (C)

A pressure cooker works on the principle of

(a) elevation of boiling point of water by application of pressure

(b) making the food-grains softer by application of pressure

(c) making the food-grains softer by application of pressure and temperature

(d) keeping the food-grains inside steam for a longer time

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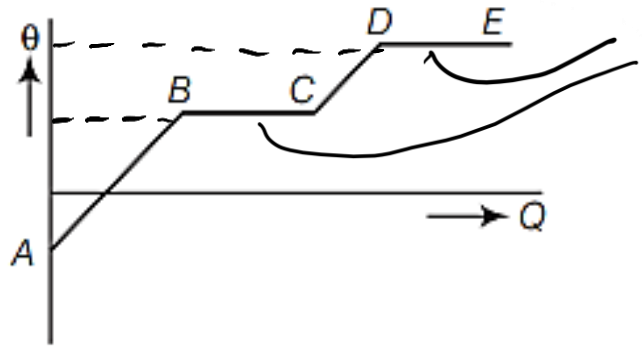
ANSWER : (A)

The graph given below indicates change in temperature θ when heat Q was given to a substance. Which among the following parts of the graph correctly depict the latent heat of the substance?



(a) *AB* and *BC*
(b) *BC* and *DE*
(c) *CD* and *DE*
(d) *DE* and *AB*

BC and DE = constant θ ⟶ Latent Heat
↓
(state change)

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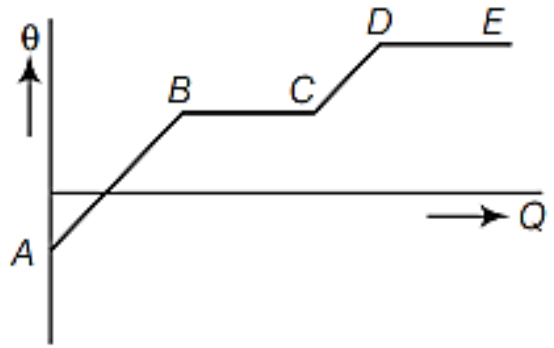

(a) *AB* and *BC*
(b) *BC* and *DE*
(c) *CD* and *DE*
(d) *DE* and *AB*

ANSWER : (B)

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GS

LIVE

PHYSICS

NUCLEUS & RADIOACTIVITY

MCQS

NAVJYOTI SIR

SSBCrack EXAMS