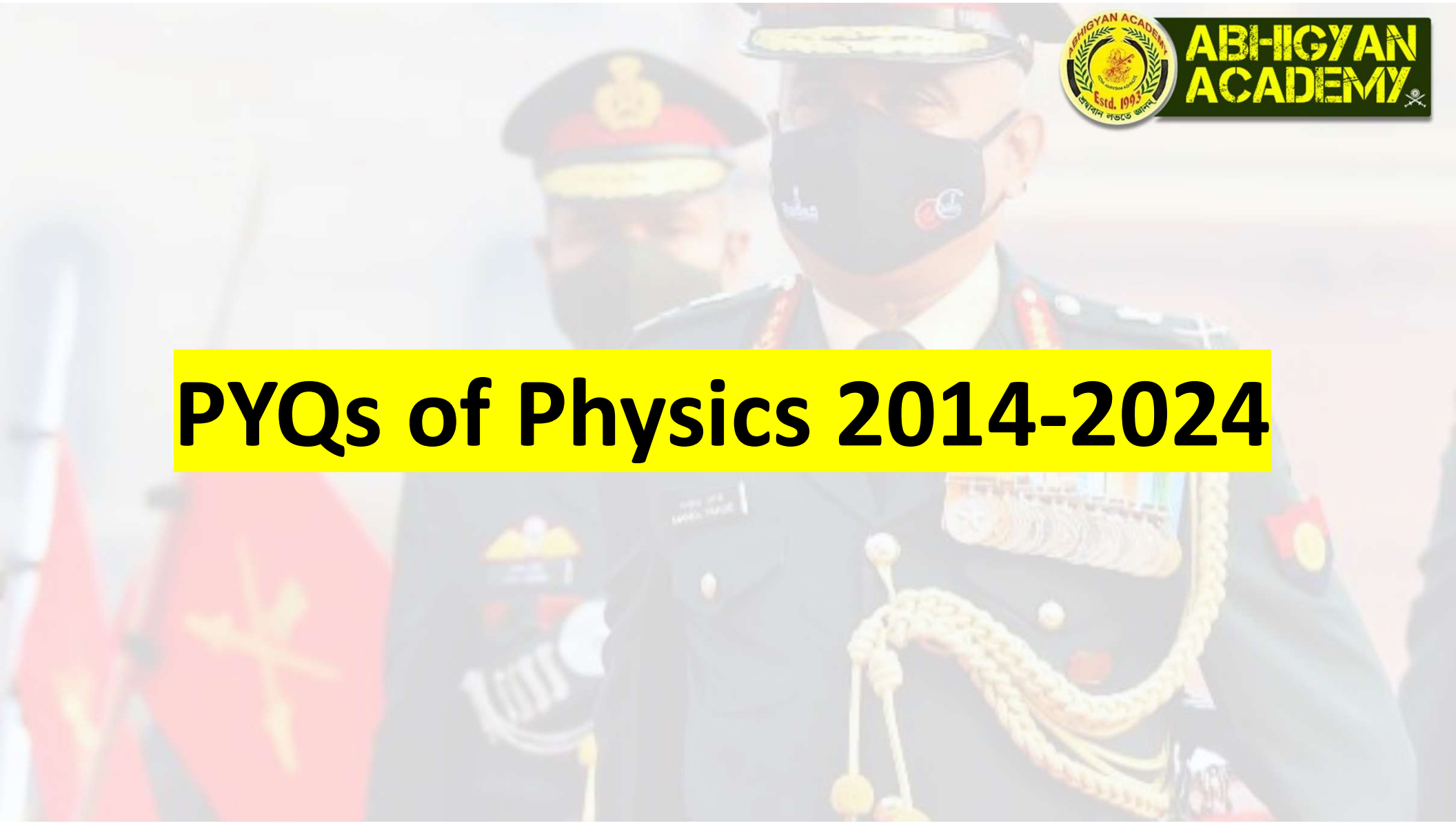


PYQs of Physics 2014-2024

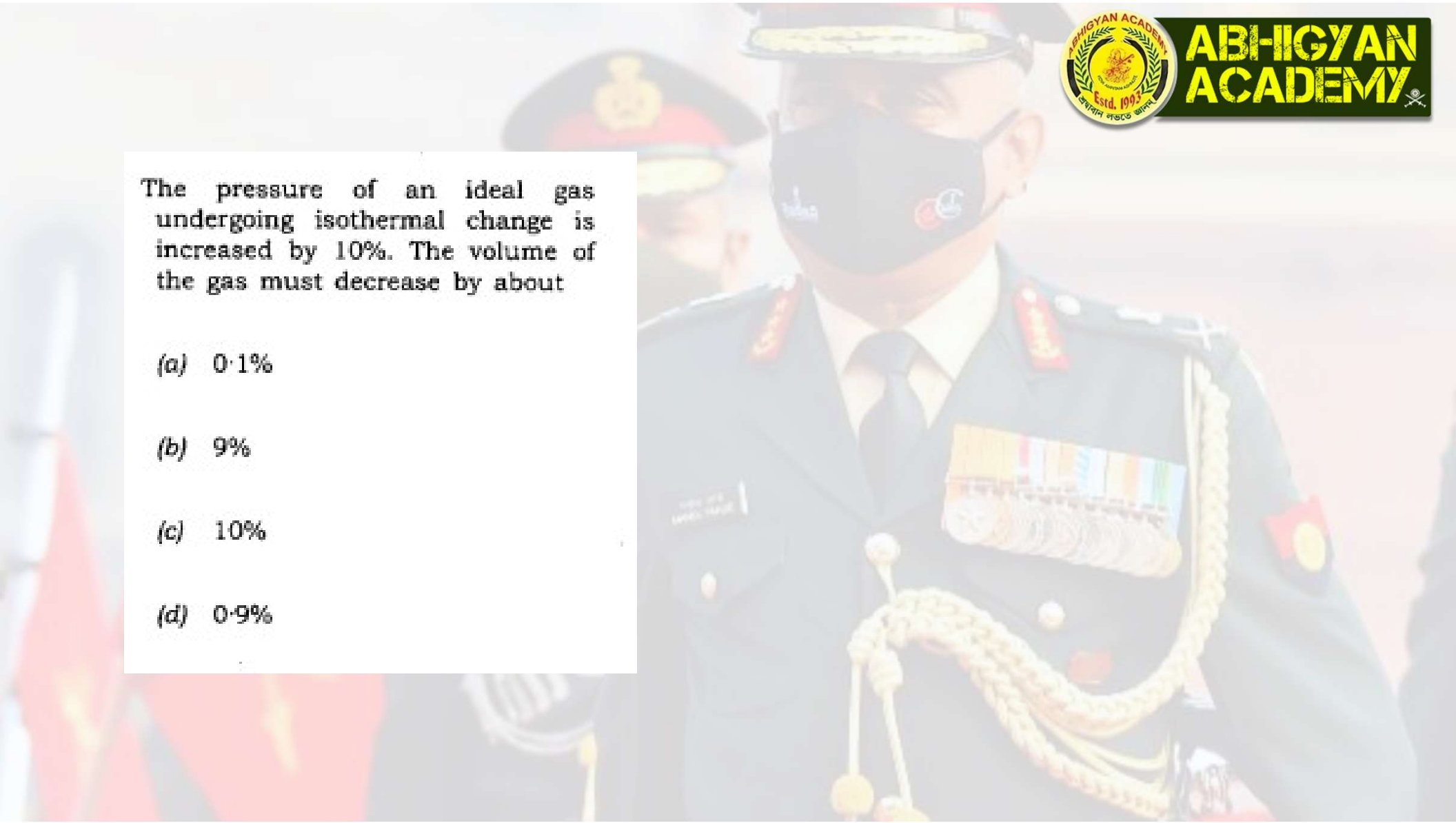
The pressure of an ideal gas undergoing isothermal change is increased by 10%. The volume of the gas must decrease by about

(a) 0·1%

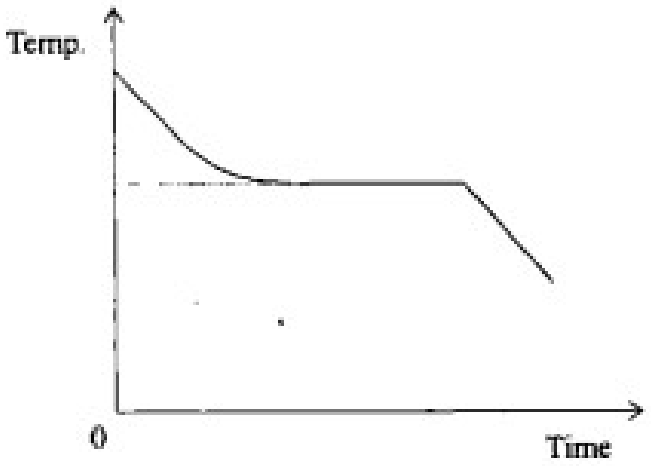
(b) 9%

(c) 10%

(d) 0·9%



A solid is melted and allowed to cool and solidify again. The temperature is measured at equal intervals of time. The graph below shows the change of temperature with time.



The part of the curve that is practically horizontal is due to

(a) latent heat given away by the liquid

(b) specific heat given away by the liquid

(c) thermal capacity changes with time keeping temperature constant

(d) change in density during transformation

Thermal conductivity of aluminium, copper and stainless steel increases in the order

(a) Copper < Aluminium < Stainless Steel

(b) Stainless Steel < Aluminium < Copper

(c) Aluminium < Copper < Stainless Steel

(d) Copper < Stainless Steel < Aluminium

A given conductor carrying a current of 1 A produces an amount of heat equal to 2000 J. If the current through the conductor is doubled, the amount of heat produced will be

(a) 2000 J

(b) 4000 J

(c) 8000 J

(d) 1000 J

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

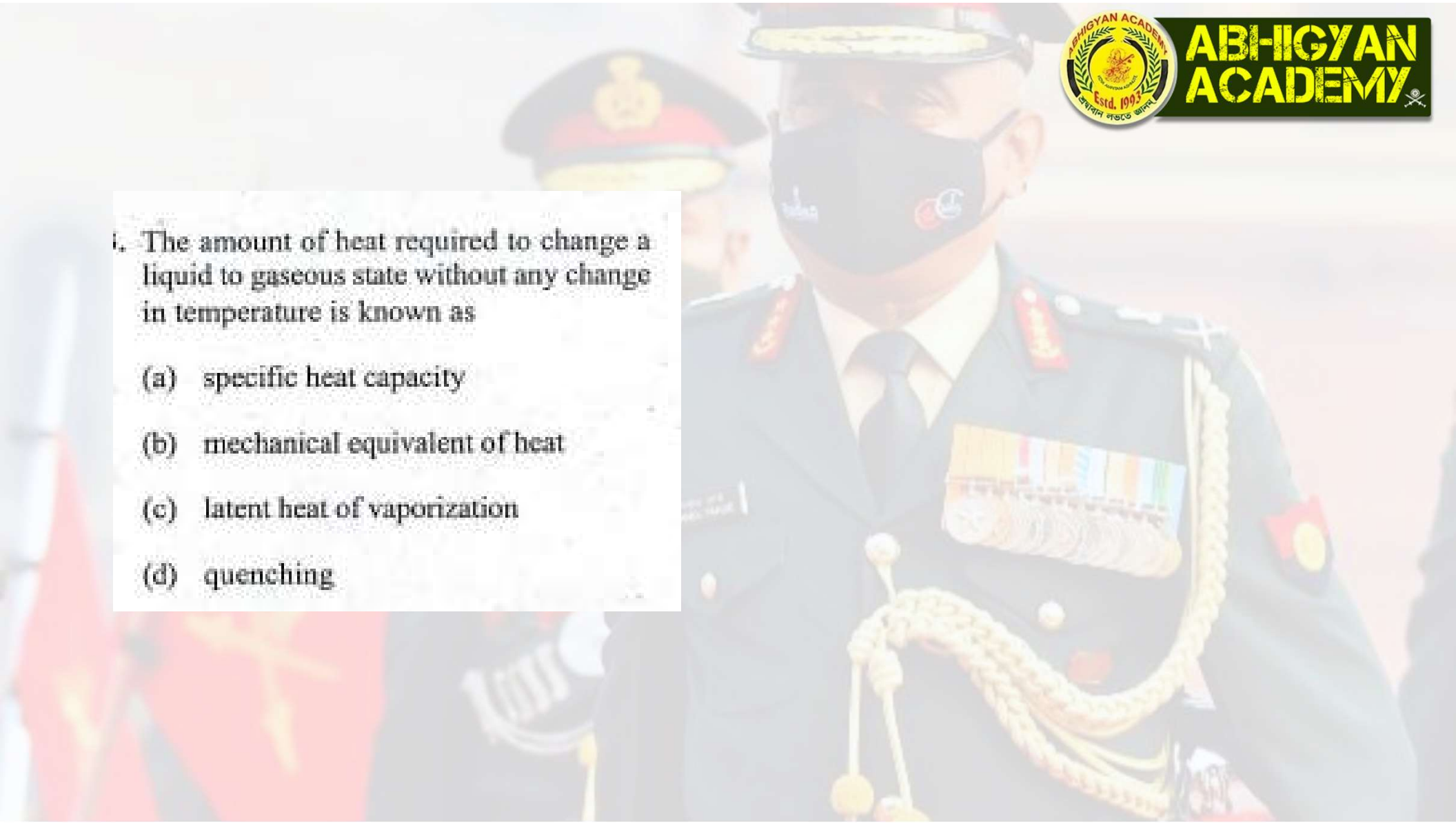
A Kelvin thermometer and a Fahrenheit thermometer both give the same reading for a certain sample. What would be the corresponding reading in a Celsius thermometer ?

(a) 574

(b) 301

(c) 273

(d) 232



ABHIGYAN ACADEMY
Estd. 1993

6. The amount of heat required to change a liquid to gaseous state without any change in temperature is known as

(a) specific heat capacity

(b) mechanical equivalent of heat

(c) latent heat of vaporization

(d) quenching

. Which one of the following devices changes low voltage alternating current to high voltage alternating current and vice versa ?

(a) Generator

(b) Motor

(c) Transformer

(d) Vibrator

4. The speed of a car travelling on a straight road is listed below at successive intervals of 1 s :

Time (s)	0	1	2	3	4
Speed (m/s)	0	2	4	6	8

Which of the following is/are correct ?

The car travels

1. with a uniform acceleration of 2 m/s^2.
2. 16 m in 4 s.
3. with an average speed of 4 m/s.

Select the correct answer using the code given below :

(a) 1, 2 and 3

(b) 2 and 3 only

(c) 1 and 2 only

(d) 1 only

. 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

Which one of the following statements is correct ?

(a) Any energy transfer that does not involve temperature difference in some way is not heat

(b) Any energy transfer always requires a temperature difference

(c) On heating the length and volume of the object remain exactly the same

(d) Whenever there is a temperature difference, heat is the only way of energy transfer

. The formula for conversion between Fahrenheit and Celsius is

$°F = X + (1{\cdot}8 \times °C)$

What is factor X ?

(a) 32

(b) 22

(c) 98

(d) 42

. Which one of the following statements regarding a thermos flask is NOT correct ?

(a) The walls of flask are separated by vacuum and made of glass which is a poor conductor of heat

(b) The glass walls themselves have shiny surfaces

(c) The surface of inner wall radiates good amount of heat and the surface of outer wall absorbs some of the heat that is radiated from the inner wall

(d) The cork supports are poor conductors of heat

Fahrenheit and Celsius are the two scales used for measuring temperature. If the numerical value of a temperature recorded in both the scales is found to be same, what is the temperature?

(a) $-40°$

(b) $+40°$

(c) $+72°$

(d) $-72°$

A thermodynamic process where no heat is exchanged with the surroundings is

(a) isothermal

(b) adiabatic

(c) isobaric

(d) isotropic

Which one of the following is the SI unit of the thermal conductivity of a material?

(a) $Wm^{-1}K^{-1}$

(b) Wm/K

(c) Wm^{-1}/K^{-1}

(d) $Js^{-1}m^{-1}K$

Which one of the following statements is ***not*** correct?

(a) Conduction can occur easily in solids, less easily in liquids but hardly at all in gases

(b) Heat energy is carried by moving particles in a convection current

(c) Heat energy is carried by electromagnetic waves in radiation

(d) The temperature at which a solid changes into a liquid is called the boiling point

Which one of the following statements is *not* correct?

(a) The Kelvin scale of temperature is called the Absolute scale

(b) Visible light radiation has wavelength range of 400—700 nm

(c) The capacity to do work is called power

(d) The wavelength of Gamma rays is less than that of X-rays

The silvering in thermos flasks is done to avoid heat transfer by:

(a) Convection
(b) Conduction
(c) Radiation
(d) Both convection and conduction

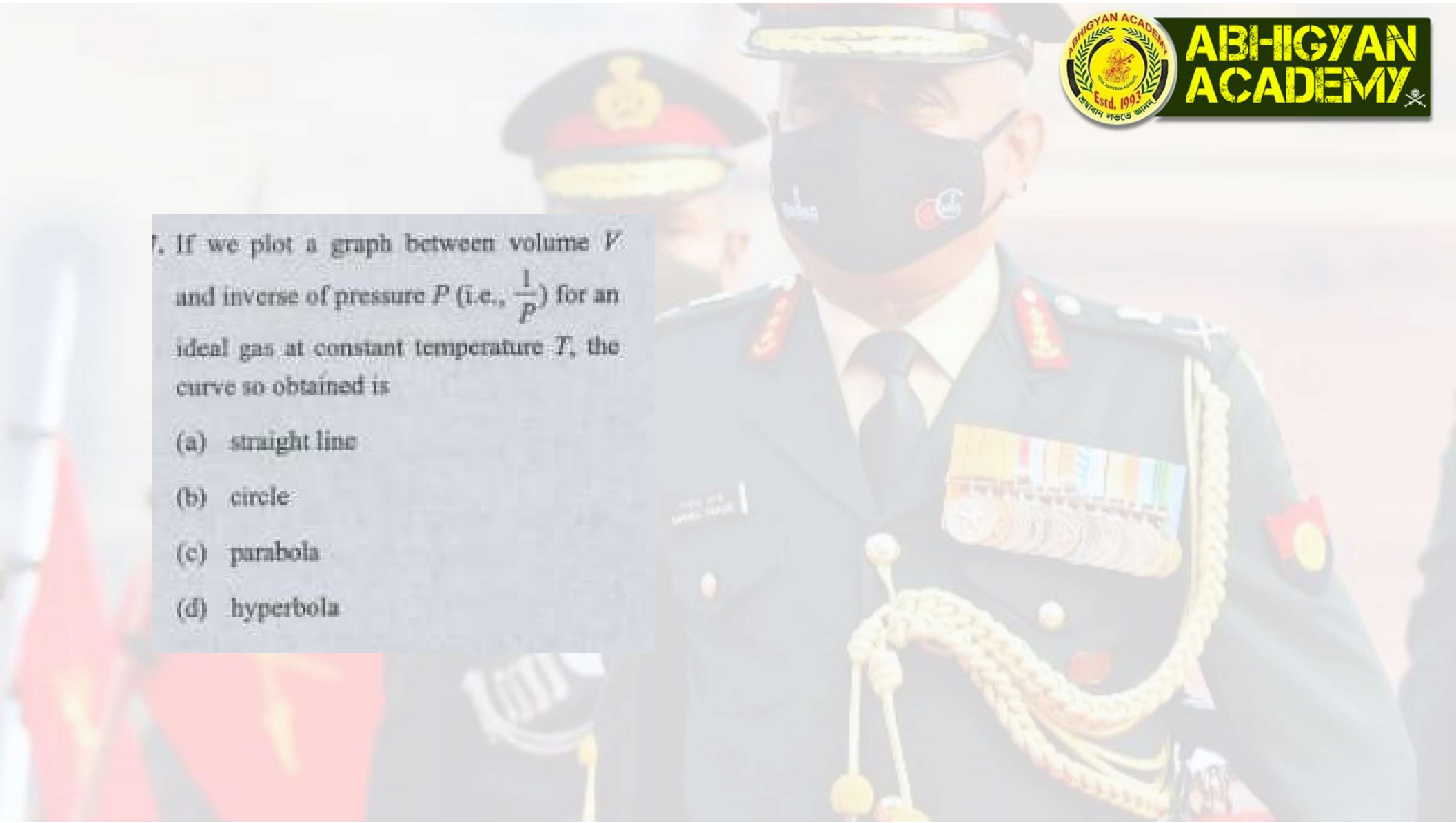
The absolute zero, i.e., temperature below which is *not* achievable, is about:

(a) 0 °C

(b) –273 K

(c) –273 °C

(d) –300 °C



. If we plot a graph between volume V and inverse of pressure P (i.e., $\frac{1}{P}$) for an ideal gas at constant temperature T, the curve so obtained is

(a) straight line

(b) circle

(c) parabola

(d) hyperbola

The absolute zero temperature is 0 Kelvin. In °C unit, which one of the following is the absolute zero temperature?

(a) 0 °C

(b) −100 °C

(c) −273·15 °C

(d) −173·15 °C

The statement that 'heat cannot flow by itself from a body at a lower temperature to a body at a higher temperature', is known as

(a) Zeroth law of thermodynamics

(b) First law of thermodynamics

(c) Second law of thermodynamics

(d) Third law of thermodynamics

. The temperature of a place on one sunny day is 113 in Fahrenheit scale. The Kelvin scale reading of this temperature will be

(a) 318 K

(b) 45 K

(c) 62·8 K

(d) 335·8 K

If the work done on the system or by the system is zero, which one of the following statements for a gas kept at a certain temperature is correct ?

(a) Change in internal energy of the system is equal to flow of heat in or out of the system.

(b) Change in internal energy of the system is less than heat transferred.

(c) Change in internal energy of the system is more than the heat flow.

(d) Cannot be determined.

10 g of ice at $-10°C$ is mixed with 10 g of water at $0°C$. The amount of heat required to raise the temperature of mixture to $10°C$ is

(a) 400 cal

(b) 550 cal

(c) 1050 cal

(d) 1200 cal

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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