

الباب الأول

أنظمة الديناميكا الحرارية الكيميائية

: **Thermodynamic Systems**

system

:State of System -

:Processes -

Reversible process

. Irreversible process

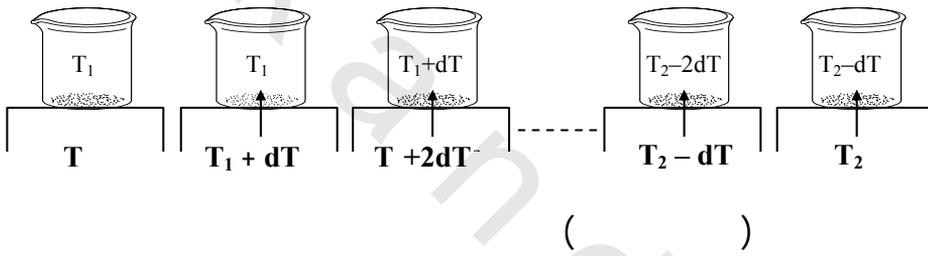
T_2 T_1

T_2 T_1

:

$T_1 + dT, T_1 + 2dT, \dots, T_2 - dT, T_2$

:



$T_1 + dT$ T_1
 $T_1 + dT$ $T_1 + 2dT$

:Temperature and thermometry

-

B

B

A

C

A

C

Zeroth law of

thermodynamics

Thermoscope

Scale

:

()

()

()

Thermometer

:

100

32°F

$\frac{9}{5}$

212°F

t_F°

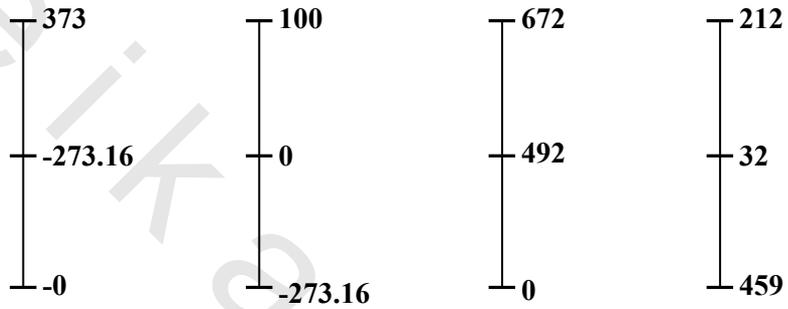
t_C°

:

$$t_F = \frac{9}{5} t_C + 32^\circ\text{F}$$

273.16°C

t_C^o



°R

Rankine T_R

$$T_R = \frac{9}{5} T$$

$$t_F = T_R - 459.67^\circ$$

1500°

200°

P_i P_S

T_i T_S

$P_i = 1000$ mm

P_S

P_i

P_S

800 mm

P_S

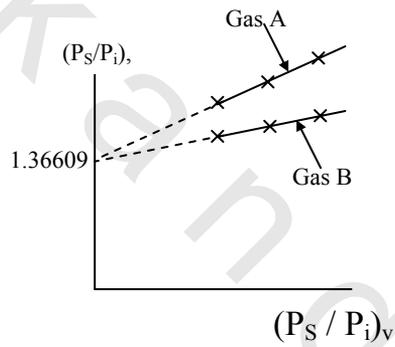
P_i

(P_S / P_i) P_i

P_i

(P_S / P_i)

:



P_i

$P_i = 0$

) A

() B

(P_S / P_i)

. B

(

. P_i

$$1.36609 \pm 0.00004$$

$$T_s/T_i$$

$$: P_i \quad (P_s / P_i)$$

$$\frac{T_s}{T_i} = \lim_{P_i \rightarrow 0} (P_s / P_i)_v = 1.36609$$

$$T_s - T_i = 100^\circ\text{K}$$

$$P_i$$

$$P$$

$$P_i = 0$$

$$(P_s / P_i)_v$$

$$\frac{T}{T_i} = \lim_{P_i \rightarrow 0} (P / P_i)_v$$

$$. T$$

$$T_i$$

$$t$$

$$t = T - T_i = T - 273.16$$

$$t_s = 100^\circ\text{C}$$

$$t_i = 0^\circ\text{C}$$

$$t = -273.16^\circ\text{C}$$

oboi.kandi.com

(P_i)

* * *

المسألة الأولى

t - 1

: t* x

$$t^* = a \ln x + b$$

$$li = 5 \quad 1 \quad x \quad (a)$$

$$. t_s^* = 100^\circ \quad t_i^* = 0^\circ \quad 1S = 25 \text{ cm} \quad \text{cm}$$

$$t^* = \quad t^* = 90^\circ \quad t^* = 10^\circ \quad t^* = 0^\circ$$

. 100°

: (b)

$$P = K T$$

$$P \quad K \quad T$$

$$. T = 0^\circ \quad t^* \quad x$$

P - 2

$$P_i \quad T \quad P / P_i$$

P _i ()	100.0	200.0	300.0	400.0
P ()	127.9	256.5	385.8	516.0

(a) - 3

$$. T_s - T_i = 180^\circ$$

$$T_s - T_i$$

(b)

$$. = 180^\circ, t_i = 32^\circ$$

- 4

: t_{Pt}

$$t_{Pt} = 100 \frac{R - R_i}{R_5 - R_i}$$

13.861
 $t = 444.6^\circ\text{C}$) 10^4 R, R_s, R_i
 26.270
 $\cdot ($
 \cdot
 \cdot (a)
 \cdot 21 (b)
 \cdot 21 (c)

* * *