

* ——— Heat and Temperature ——— *

→ Heat — Hotness → Joules
→ Calorine.

$$1 \text{ Calorine} = 4.2 \text{ J}$$

fuel = calorific value = J/g.

(कैलरी प्रति ग्राम)

or KJ/kg.

↓
energy produced by fuel on complete combustion of 1 gm.

SSC

Q → which fuel has maximum calorific value?

- ①
- a) wood
 - b) Coal
 - c) coal
 - d) LPG.

- ②
- a) kerosene
 - b) Diesel
 - c) Petrol
 - d) CNG.

- ③
- a) CH₄
 - b) C₂H₄
 - c) C₃H₆
 - d) C₄H₁₀

⇒ ① gases always have maximum calorific value.
after that liquid then solid.

gases — Liquid — Solid.

Imp ② Hydrogen gas has the maximum calorific value.

③ Best fuel

- ① blue flame on the Combustion.
- ② No Smoke No Residue
- ③ High calorific value
- ④ maximum % of H and O
(Hydrogen) (Oxygen)
- ⑤ minimum % of C.
(Carbon)

⇒ LPG - (Liquid Petroleum gas)

① LPG contains Butane gas.

→ other gases are = Ethane + Propane

② Ethyle Mercaptan :- detect the leakage of LPG.



↓
has Sulphur Smell.

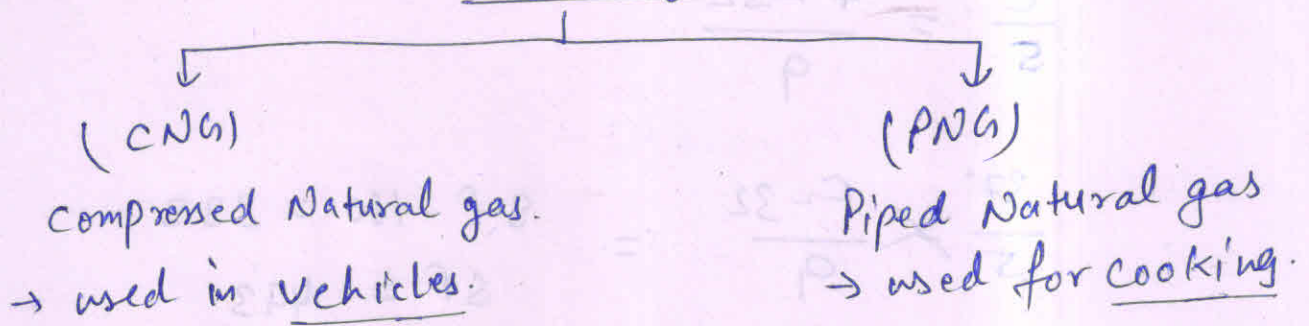
⇒ Natural gas :-

→ mainly contains methane - CH_4

↓
65% to 95%

→ other gases → Ethane + Propane

Natural gas



⇒ Temperature :-

Q: what is the normal human body temperature?

- a) 98.6°C
- b) 37°C or 98.6°F
- c) 68°C
- d) None of these.

Ans b

→ temperature is measure in Celsius, Kelvin, Fahrenheit
C K F

→ Relation among the C, F, K

$$\frac{C}{5} = \frac{F - 32}{9} = \frac{K - 273}{5}$$

→ C value into K = $C + 273$

→ K value into C = $K - 273$

eg: ① 40°C into K = $40 + 273 = 313\text{K}$

② 400K into C = $400 - 273 = 127^\circ\text{C}$

③ Change 37°C into F :-

$$\frac{C}{5} = \frac{F - 32}{9}$$

$$\frac{37}{5} \times \frac{F - 32}{9} = 8F - 160 = 333$$
$$8F = 493$$
$$F = 98.6 \text{ } \underline{\text{Am}}$$

$$\boxed{\begin{array}{l} C = F \\ -40^{\circ}\text{C} = -40^{\circ}\text{F} \end{array}}$$

→ Celsius & Fahrenheit will equal in -40°.

→ main points of Heat/Temp

① Normal Human body Temp. = $\boxed{98.6^{\circ}\text{F}}$
or
 $\boxed{37^{\circ}\text{C}}$
or
 $\boxed{310^{\circ}\text{K}}$

② Absolute zero temp. is minimum measurable temp.
↓
 $\boxed{-273^{\circ}\text{C}}$ or $\boxed{0^{\circ}\text{Kelvin}}$

③ $0^{\circ}\text{C} = 273^{\circ}\text{K}$

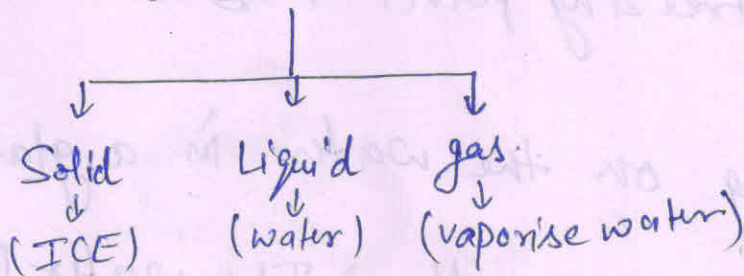
$1^{\circ}\text{C} = 274^{\circ}\text{K}$

④ -40°C is equal to -40°F .

⑤ on freezing the water = It's volume \rightarrow Increase \uparrow

⑥ Triple point of water $\rightarrow 0^\circ\text{C}$ [0.01°C]. \leftarrow

\rightarrow Triple point mean - water exist in 3 forms.



⑦ water density \rightarrow maximum at 4°C or 277K .

⑧ Dry ICE :- Solid CO_2

① It does not melt.

② Evaporate easily.

③ Produce Bubble with water.

uses of Dry ICE :-

① for deep cooling like freezing.

② In the ICE-CREAM BOX.

③ In the Mortary. (गिराज)

④ In the fire-Extinguisher

⑤ ON DANCE FLOOR

⑥ It keep safe medicine or Injection.

⑨ By Addition :-

→ [Salt/water in the water

- It's
- ① Boiling point → Increase ↑
 - ② Freezing point → Decrease ↓

⑩ ICE is floating on the water in a glass :-

When the ICE melts → Its water level →

Imp.

Remain Constant.

⑪ By Increasing the Pressure :-

→ The Boiling point of water →
Increase ↑.