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TENDER HEART HIGH SCHOOL; SEC-33B, CHD

Subject - PHYSICS

CLASS - VII

Named teacher: - Charanjyot Singh

CL - (HEAT) CONTINUE

Page - 1

Qus 35: → Why are chimneys provided over furnaces in factories?

Ans: → The hot gases coming out from the furnaces are less dense than air so they rise up through the chimney. The smoke and fumes around the furnace take the place of hot gases and they will be removed.

Qus 36: → Why is a ventilator provided in a room?

Ans 36: → Ventilators are used for proper ventilation. When we breathe out in a room, the air in the room becomes warm and less dense (lighter), so it rises up and moves out through the ventilators.

Qus 37: → Define Radiation • Give one example.

Ans It is the process of heat transfer in which heat directly passes from one body to another at higher temperature to another body at lower temperature without affecting the medium. For example, when we sit in the sun, we feel warm. We get heat from the sun by the mode of radiation.

Qus 38: → Write the mode of heat transfer in a vacuum?

Ans: → Process of Radiation, because radiation needs no medium for its transfer.

Q 39: → Which surfaces absorb more radiations and reflect less radiations and becomes more warm?

Ans Black and dull surfaces

Q40:- Which surfaces reflect more radiations and absorb less radiations and reflects more?

Ans:- White and Shiny surfaces.

Q41:- The bottom of ... cooking utensils is painted black why?

Ans:- The reason is that black surface absorbs more heat and becomes more warm so, contents of the utensil get cooked rapidly. So bottom of cooking utensils is painted black.

Q42:- Why do we prefer to wear white or light coloured clothes in summer and black or dark coloured clothes in winter?

Ans:- <sup>or light</sup> white coloured clothes absorb very less heat and reflect most of the sun's heat and keep our body cool. And black or dark coloured clothes absorb most of the sun's heat and reflect less and keep our body warm in winter.

Numericals:- ① The normal temperature of a body is  $37^{\circ}\text{C}$ . What will be its value on the (a) Fahrenheit Scale (b) Kelvin Scale?

Solution (a) From relation;

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

after cross-multiplication;

$$\frac{9}{5}^{\circ}\text{C} = (F - 32)$$

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

$$\text{or } \boxed{32 + \frac{9}{5}^{\circ}\text{C} = F}$$



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

$$F = 32 + \frac{9}{5} \times 37$$

$$F = 32 + \frac{333}{5}$$

$$F = 32 + 66.6$$

$$F = 98.6$$

$$\text{So } \boxed{37^{\circ}\text{C} = 98.6^{\circ}\text{F}} \quad \underline{\underline{\text{Ans}}}$$

(b) Since  $T_K = T_C^{\circ} + 273$

$$T_K = 37 + 273 = 310$$

$$\text{So } \boxed{37^{\circ}\text{C} = 310\text{K}} \quad \underline{\underline{\text{Ans}}}$$

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(2)

Convert  $10^{\circ}\text{C}$  in (a) degree Fahrenheit and (b) Kelvin

Solution 8— (a)  $F = 32 + \frac{9}{5} C$

$$F = 32 + \frac{9 \times 10}{5}$$

$$F = 32 + \frac{90}{5} 18$$

$$F = 50$$

$$\text{So } \boxed{10^{\circ}\text{C} = 50^{\circ}\text{F}} \quad \underline{\underline{\text{Ans}}}$$

(b) Since  $T_K = T_C^{\circ} + 273$

$$= 10 + 273$$

$$= 283$$

$$\text{So } \boxed{10^{\circ}\text{C} = 283\text{K}} \quad \underline{\underline{\text{Ans}}}$$