

NEET PHYSICS

Topic: Calorimetry

Q.1 The amount of heat required to raise the temperature of 1 kg of water through 1°C is called -

- (1) kilocalorie (2) calorie
(3) B.T.U. (4) calorie/°C

Q.2 How much heat energy is gained when 5 kg of water at 20°C is brought to its boiling point ?

- (1) 1680 kJ (2) 1700 kJ
(3) 1720 kJ (4) 1740 kJ

Q.3 Heat is -

- (1) The amount of internal energy contained in a body
(2) Equal to $ms\theta$ (where m = mass, s = specific heat and θ = temperature of the body)
(3) The sum of kinetic and potential energy of molecules of the body
(4) The amount of internal energy flowing from a body at higher temperature

Q.4 The value of specific heat of an ideal gas, with rise in temperature -

- (1) Increases (2) Decreases
(3) Is independent (4) None of these

Q.5 The specific heat of a gas -

- (1) Has only two values C_p and C_v
(2) Has only one value at a specific temperature
(3) May have any value between 0 and ∞
(4) Depends on the mass of the gas.

Q.6 Experiments were carried out by the students for determination of values

of C_p and C_v in cal/mole K, the following pair is correct -

(1) $C_v = 2, C_p = 1$ (2) $C_v = 4, C_p = 5$

(3) $C_v = 3, C_p = 4$ (4) $C_v = 3, C_p = 5$

Q.7 The ratio of C_p of a mono-atomic gas and C_v of a diatomic gas is -

(1) 3 : 5 (2) 5 : 3

(3) 1 : 1 (4) 7 : 5

Q.8 The approximate value of C_v of 1 gm helium gas is -

(1) $3/4$ cal/gm°C (2) 3 cal/gm°C

(3) $3/2$ cal/gm°C (4) $2/3$ cal/gm°C

Q.9 With the rise in atomicity of a gas the ratio of specific heats of a gas -

(1) Increase

(2) Decrease

(3) Remains unchanged

(4) May increase or decrease

Q.10 The specific heat of gas under constant pressure is $7/2 R$, the gas is -

(1) Mono- atomic (2) Diatomic

(3) Tri-atomic (4) Ideal

Q.11 On mixing 1 mole of He and 1 mole of oxygen, the value of molar specific heat at constant volume is-

(1) R (2) 2R (3) 3R (4) 4R

Q.12 In the above question, the value of molar specific heat at constant pressure will be -

(1) R (2) 2R (3) 3R (4) 4R

Q.13 A temperature different of 5°C on Celsius scale corresponds to the following temperature difference in the Fahrenheit scale -

- (1) 9° (2) 41° (3) 2.8° (4) 15°

Q.14 In a temperature scale called Z the boiling point of water is at 65°Z and the freezing point is at -14°Z . Then the temperature $T = -98^{\circ}\text{Z}$ corresponds on the Fahrenheit scale to -

- (1) -191°F
(2) -159°F
(3) 79°F
(4) none of the above

Q.15 Suppose that on a temperature scale X, water boils at -53.5°X and freezes at -170°X . What would be temperature of 340K be on the X scale ?

- (1) 544° (2) -103°
(3) -91.9° (4) -120.5°

Q.16 0°C is equivalent to the following -

- (1) 273.15 K (2) 273 K
(3) 0 K (4) 32 K

Q.17 The temperature of a substance rises by 27°C . The rise in temperature in Kelvin scale will be -

- (1) 300 K (2) 2.46 K
(3) 27 K (4) 7 K

Q.18 Two spheres made of same substance have diameters in the ratio $1 : 2$. Their thermal capacities are in the ratio of -

- (1) $1 : 2$ (2) $1 : 8$
(3) $1 : 4$ (4) $2 : 1$

- Q.19** The amount of heat required to change the state of 1 kg of substance at constant temperature is called -
- (1) kilo cal (2) calorie
(3) specific heat (4) latent heat
- Q.20** The water equivalent of a 400 g copper calorimeter (specific heat = 0.1 cal/g°C) -
- (1) 40 g (2) 4000 g
(3) 200 g (4) 4 g
- Q.21** The thermal capacity of 40 g of aluminium (specific heat = 0.2 cal/gm°C) -
- (1) 40 cal/°C (2) 160 cal/°C
(3) 200 cal/°C (4) 8 cal/°C
- Q.22** A ball of mass 20 g and specific heat capacity 0.1 cal/g -°C. The water equivalent of ball is -
- (1) 2g (2) 4g
(3) 6g (4) 5g
- Q.23** The heat capacity of a metal is 4200 J/k. Its water equivalent is -
- (1) 0.5 kg (2) 1 kg
(3) 1.5 kg (4) 2 kg
- Q.24** The amount of heat required to raise the temperature of a body from 20°C to 60° C is (water equivalent of body is 10 gm).
- (1) 200 cal (2) 300 cal
(3) 400 cal (4) 500 cal

Q.25 If C_p and C_v are gram specific heats at constant pressure and constant volume respectively, then it is found that for hydrogen $C_p - C_v = a$ and for oxygen $C_p - C_v = b$.

The relation between a and b is -

- (1) $a = b$ (2) $a = 4b$
(3) $a = 16b$ (4) $16a = b$

Q.26 11 grams of carbondioxide are heated at constant pressure from 27°C to 227°C .

The amount of heat transferred to carbondioxide will be -

- (1) 110 Calorie (2) 220 Calorie
(3) 450 Calorie (4) 2200 Calorie

Q.27 1 gram of ice at 0°C is converted to steam at 100°C . The amount of heat required will be-

- (1) 756 Calorie (2) 12000 Calorie
(3) 716 Calorie (4) 450 Calorie

Q.28 When the temperature of an iron sphere of mass 1kg. falls from 30°C to 25°C , then 550 calories of heat are released The heat capacity of iron sphere will be in $\text{Cal}/^\circ\text{C}$ -

- (1) 110 (2) 220
(3) 330 (4) 440

Q.29 In the above problem the specific heat of iron will be -

- (1) 0.72 (2) 0.33
(3) 0.11 (4) 0.44

Q.30 The amount of heat required to increase the temperature of 1 mole of an ideal gas through 10K at constant pressure is 207 joule. Keeping the same gas at constant volume, the amount of heat required to increase its temperature through 10K will be -

- (1) 124 Joule (2) 215.3 joule
(3) 29 Joule (4) 198.7 Joule

ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10
Ans.	1	1	4	3	3	4	3	1	2	2
Que.	11	12	13	14	15	16	17	18	19	20
Ans.	2	3	1	2	3	1	3	2	4	1
Que.	21	22	23	24	25	26	27	28	29	30
Ans.	4	1	2	3	3	3	3	1	3	1

