AIPMT 2006

1. A black body emits radiation of maximum intensity at 5000 Å when its temperature is 1227° C. If its temperature is increased by 1000° C then the maximum intensity of emitted radiation will be at:

(1) 2754.8 Å (2) 3000 Å
(3) 3500 Å (4) 4000 Å

2. The translational kinetic energy of molecules of one mole of a monoatomic gas is U=3NkT/2. The value of molar specific heat of gas under constant pressure will be :

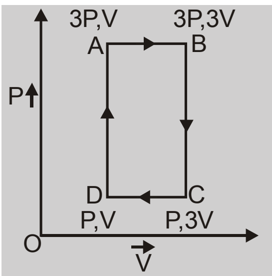
(1) $\frac{3}{2}R$ (2) $\frac{5}{2}R$ (3) $\frac{7}{2}R$ (4) $\frac{9}{2}R$

3. The molar specific heat at constant pressure of an ideal gas is (7/2)R. The ratio of specific heat at constant pressure to that at constant volume is :

(1) $\frac{7}{5}$ (2) $\frac{8}{7}$ (3) $\frac{5}{7}$ (4) $\frac{9}{7}$

AIPMT 2007

4. An ideal monoatomic gas is taken round the cycle ABCDA as shown in following P - V diagram. The work done during the cycle is :



(1) PV (2) 2 PV (3) 4 PV (4) Zero

5. The $\left(\frac{W}{Q}\right)$ of a carnot-engine is $\frac{1}{6}$, now the temperature of sink is reduced by 62°C, then this ratio becomes twice, therefore the initial temperature of the sink and source are respectively:-

(1) 33°C, 67°C (2) 37°C, 99°C
(3) 67°C, 33°C (4) 97 K, 37 K

AIPMT 2008

6. A new scale of temperature (which is linear) called the W scale, the freezing and boiling points of water are 39°W and 239°W respectively. What will be the temperature on the new scale, corresponding to a temperature of 39°C on the Celsius scale ?

(1) 200° W (2) 139° W
(3) 78° W (4) 117°W

7. At 10°C the value of the density of a fixed mass of an ideal gas divided by its pressure is x. At 110°C this ratio is :-

(1) $\frac{10}{110}x$ (2) $\frac{283}{383}x$
(3) x (4) $\frac{383}{283}x$

8. If Q, E and W denote the heat added, change in internal energy and the work done respectively in a closed cycle process, then :-

(1) E = 0 (2) Q = 0
(3) W=0 (4) Q=W=0

AIPMT 2009

9. The two ends of a rod of length L and a uniform cross sectional area A are kept at two temperatures T_1 and T_2 ($T_1 > T_2$). The rate of heat transfer $\frac{dQ}{dt}$, through the rod in a steady state is given by :–

(1) $\frac{dQ}{dt} = \frac{kA(T_1 - T_2)}{L}$

(2) $\frac{dQ}{dt} = \frac{kL(T_1 - T_2)}{A}$

(3) $\frac{dQ}{dt} = \frac{k(T_1 - T_2)}{LA}$

(4) $\frac{dQ}{dt} = kLA(T_1 - T_2)$

10. A black body, at a temperature of 227°C radiates heat at a rate of 7 cal cm^{-2} s^{-1}. At a temperature of 727°C, the rate of heat radiated in the same units will be :–

(1) 80 (2) 60 (3) 50 (4) 112

11. In thermodynamic processes which of the following statement is not true :-

(1) In an adiabatic process PV^{γ} = constant

(2) In an adiabatic process the system is insulated from the surroundings

(3) In an isochoric process pressure remains constant

(4) In an Isothermal process the temperature remains constant

12. The change in internal energy in a system that has absorbed 2 Kcals of heat and 500 J of work done is :-

(1) 7900J (2) 8900J

(3) 6400J (4) 5400J

AIPMT (Pre) 2010

13. A cylindrical metallic rod in thermal contact with two reservoirs of heat at its two ends conducts an amount of heat Q in time t. The metallic rod is melted and the material is formed into a rod of half the radius of the original rod. What is the amount of heat conducted by the new rod, when placed in thermal contact with the two reservoirs in time t ?

(1) $\frac{Q}{2}$ (2) $\frac{Q}{4}$ (3) $\frac{Q}{16}$ (4) 2Q

14. Total radiant energy per unit area, per unit time normal to the direction of incidence, received at a distance R from the centre of a star of radius r, whose outer surface radiates as a black body at a temperature T Kelvin is given by :-

(1) $\frac{4\pi\sigma r^2T^4}{R^2}$ (2) $\frac{\sigma r^2T^4}{R^2}$

(3) $\frac{\sigma r^2T^4}{4\pi r^2}$ (4) $\frac{\sigma r^4T^4}{r^4}$

(Where σ is Stefan's Constant)

15. If ΔU and ΔW represent the increase in internal energy and work done by the system respectively in a thermodynamic process, which of the following is true ?

(1) ΔU = –ΔW, in a isothermal process

(2) ΔU = –ΔW, in a adiabatic process

(3) ΔU = ΔW, in a isothermal process

(4) ΔU = ΔW, in a adiabatic process

AIPMT (Mains) 2010

16. If c_p and c_v denote the specific heats (per unit mass) of an ideal gas of molecular weight M, then :-

(1) $c_p - c_v = R$ (2) $c_p - c_v = \frac{R}{M}$

(3) $c_p - c_v = MR$ (4) $c_p - c_v = \frac{R}{M^2}$

where R is the molar gas constant

17. A monoatomic gas at pressure P_1 and volume V_1 is compressed adiabatically to $1/8^{th}$ its original volume. What is the final pressure of the gas :-

(1) P_1 (2) $16P_1$ (3) $32\ P_1$ (4) $64\ P_1$

AIPMT (Pre) 2011

18. During an isothermal expansion, a confined ideal gas does +150 J of work against its surroundings. This implies that :-

(1) 150 J of heat has been removed from the gas

(2) 300 J of heat has been added to the gas

(3) No heat is transferred because the process is isothermal

(4) 150 J of heat has been added to the gas

19. A mass of diatomic gas (γ = 1.4) at a pressure of 2 atmospheres is compressed adiabatically so that its temperature rises from 27°C to 927°C. The pressure of the gas in the final state is :-

(1) 8 atm (2) 28 atm

(3) 68.7 atm (4) 256 atm

20. When 1kg of ice at 0°C melts to water at 0°C, the resulting change in its entropy, taking latent heat of ice to be 80 cal/g, is -

(1) 273 cal/K (2) 8×10^4 cal/K

(3) 80 cal/K (4) 293 cal/K

AIPMT (Pre) 2012

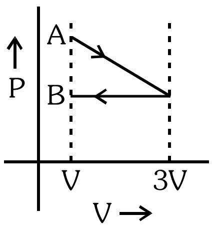
21. If the radius of a star is R and it acts as a black body, what would be the temperature of the star, in which the rate of energy production is Q ?

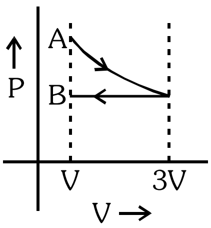
(1) $(4\pi R^2 Q/\sigma)^{1/4}$ (2) $(Q/4\pi R^2\sigma)^{1/4}$

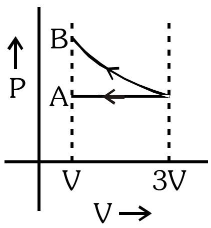
(3) $Q/4\pi R^2\sigma$ (4) $(Q/4\pi R^2\sigma)^{-1/2}$

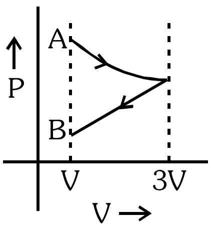
(σ stands for Stefan's constant.)

22. One mole of an ideal gas goes from an initial state A to final state B via two processes. It firstly undergoes isothermal expansion from volume V to 3V and then its volume is reduced from 3V to V at constant pressure. The correct P-V diagram representing the two processes is :-

(1) 

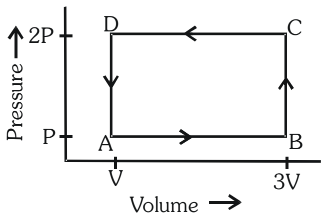
(2) 

(3) 

(4) 

HT0309

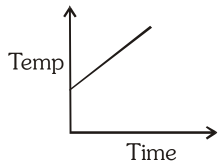
23. A thermodynamic system is taken through the cycle ABCD as shown in figure. Heat rejected by the gas during the cycle is :-

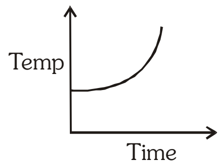


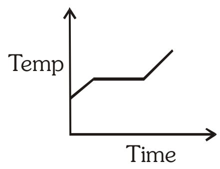
(1) $\frac{1}{2}$PV (2) PV

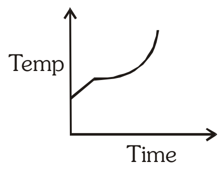
(3) 2PV (4) 4PV

24. Liquid oxygen at 50 K is heated to 300 K at constant pressure of 1 atm. The rate of heating is constant. Which one of the following graphs represents the variation of temperature with time ?

(1) 

(2) 

(3) 

(4) 

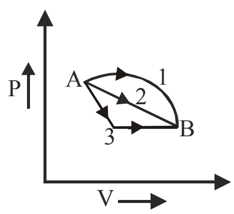
AIPMT (Mains) 2012

25. A slab of stone of area 0.36 m^2 and thickness 0.1 m is exposed on the lower surface to steam at 100°C. A block of ice at 0°C rests on the upper surface of the slab. In one hour 4.8 kg of ice is melted. The thermal conductivity of slab is :
(Given latent heat of fusion of ice 3.36×10^5 J kg^{-1})

(1) 2.05 J/m/s/°C (2) 1.02 J/m/s/°C

(3) 1.24 J/m/s/°C (4) 1.29 J/m/s/°C

26. An ideal gas goes from state A to state B via three different processes as indicated in the P-V diagram



If Q_1 , Q_2, Q_3 indicate the heat absorbed by the gas along the three processes and ΔU_1, ΔU_2, ΔU_3 indicate the change in internal energy along the three processes respectively, then :-

(1) $Q_1 = Q_2 = Q_3$ and $\Delta U_1 > \Delta U_2 > \Delta U_3$

(2) $Q_3 > Q_2 > Q_1$ and $\Delta U_1 > \Delta U_2 > \Delta U_3$

(3) $Q_1 > Q_2 > Q_3$ and $\Delta U_1 = \Delta U_2 = \Delta U_3$

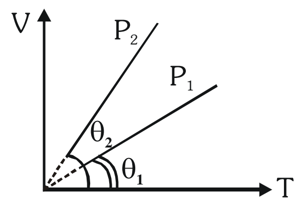
(4) $Q_3 > Q_2 > Q_1$ and $\Delta U_1 = \Delta U_2 = \Delta U_3$

NEET-UG 2013

27. A piece of iron is heated in a flame. It first becomes dull red then becomes reddish yellow and finally turns to white hot. The correct explanation for the above observation is possible by using :-

(1) Newton's Law of cooling
(2) Stefan's Law
(3) Wein's displacement Law
(4) Kirchoff's Law

28. In the given (V – T) diagram, what is the relation between pressure P_1 and P_2 ?



(1) Cannot be predicted (2) $P_2 = P_1$
(3) $P_2 > P_1$ (4) $P_2 < P_1$

29. The amount of heat energy required to raise the temperature of 1 g of Helium at constant volume, from T_1 K to T_2 K is :-

(1) $\frac{3}{4} N_a k_B \left(\frac{T_2}{T_1}\right)$ (2) $\frac{3}{8} N_a k_B (T_2 - T_1)$

(3) $\frac{3}{2} N_a k_B (T_2 - T_1)$ (4) $\frac{3}{4} N_a k_B (T_2 - T_1)$

30. The molar specific heats of an ideal gas at constant pressure and volume are denoted by C_P and C_V respectively. If $\gamma = \frac{C_P}{C_V}$ and R is the universal gas constant, then C_V is equal to :

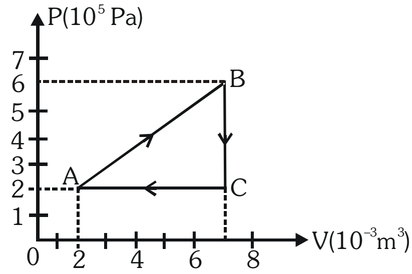
(1) γR (2) $\frac{1+\gamma}{1-\gamma}$

(3) $\frac{R}{(\gamma-1)}$ (4) $\frac{(\gamma-1)}{R}$

31. During an adiabatic process, the pressure of a gas is found to be proportional to the cube of its temperature. The ratio of $\frac{C_p}{C_v}$ for the gas is :-

(1) $\frac{3}{2}$ (2) $\frac{4}{3}$ (3) 2 (4) $\frac{5}{3}$

32. A gas is taken through the cycle A→B→C→A, as shown, What is the net work done by the gas ?



(1) –2000 J (2) 2000 J
(3) 1000 J (4) Zero

AIPMT 2014

33. Steam at 100°C is passed into 20 g of water at 10°C. When water acquires a temperature of 80°C, the mass of water present will be :
[Take specific heat of water = 1 cal g^{-1} °C^{-1} and latent heat of steam = 540 cal g^{-1}]

(1) 24 g (2) 31.5 g
(3) 42.5 g (4) 22.5 g

34. Certain quantity of water cools from 70°C to 60°C in the first 5 minutes and to 54°C in the next 5 minutes. The temperature of the surroundings is:-

(1) 45°C (2) 20°C
(3) 42°C (4) 10°C

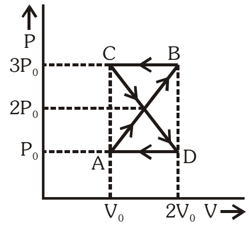
35. The mean free path of molecules of a gas, (radius 'r') is inversely proportional to :-

(1) r^3 (2) r^2 (3) r (4) $\sqrt{r}$

36. A monoatomic gas at a pressure P, having a volume V expands isothermally to volume 2V and then adibatically to volume 16V. The final pressure of the gas is : (take $\gamma = \frac{5}{3}$)

(1) 64P (2) 32P (3) $\frac{P}{64}$ (4) 16P

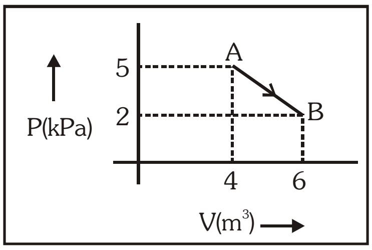
37. A thermodynamic system undergoes cyclic process ABCDA as shown in fig. The work done by the system in the cycle is :-



(1) P_0V_0 (2) $2P_0V_0$ (3) $\frac{P_0V_0}{2}$ (4) Zero

AIPMT 2015

38. One mole of an ideal diatomic gas undergoes a transition from A to B along a path AB as shown in the figure,



The change in internal energy of the gas during the transition is :

(1) –20 kJ (2) 20 J
(3) –12 kJ (4) 20 kJ

39. On observing light from three different stars P, Q and R, it was found that intensity of violet color is maximum in the spectrum of P, the intensity of green colour is maximum in the spectrum of R and the intensity of red colour is maximum in the spectrum of Q. If T_P, T_Q and T_R are the respective absolute temperatures of P, Q and R, then it can be concluded from the above observation that :

(1) $T_P > T_R > T_Q$ (2) $T_P < T_R < T_Q$
(3) $T_P < T_Q < T_R$ (4) $T_P > T_Q > T_R$

40. A Carnot engine, having an efficiency of $\eta = \frac{1}{10}$ as heat engine, is used as a refrigerator. If the work done on the system is 10 J, the amount of energy absorbed from the reservoir at lower temperature is :-

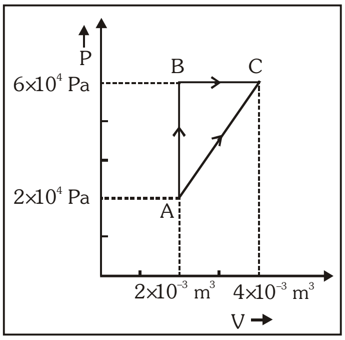
(1) 99 J (2) 90 J (3) 1 J (4) 100 J

41. The ratio of the specific heats $\frac{C_P}{C_V} = \gamma$ in terms of degrees of freedom (n) is given by :

(1) $\left(1+\frac{n}{3}\right)$ (2) $\left(1+\frac{2}{n}\right)$

(3) $\left(1+\frac{n}{2}\right)$ (4) $\left(1+\frac{1}{n}\right)$

42. Figure below shows two paths that may be taken by a gas to go from a state A to a state C.



In process AB, 400 J of heat is added to the system and in process BC, 100 J of heat is added to the system. The heat absorbed by the system in the process AC will be :

(1) 500 J (2) 460 J
(3) 300 J (4) 380 J

43. The two ends of a metal rod are matainted at temperatures 100°C and 110°C. The rate of heat flow in the rod is found to be 4.0 J/s. If the ends are maintained at temperatures 200°C and 210°C, the rate of heat flow will be :

(1) 16.8 J/s (2) 8.0 J/s
(3) 4.0 J/s (4) 44.0 J/s

Re-AIPMT 2015

44. Two vessels separately contain two ideal gases A and B at the same temperature, the pressure of A being twice that of B. Under such conditions, the density of A is found to be 1.5 times the density of B. The ratio of molecular weight of A and B is:

(1) $\frac{1}{2}$ (2) $\frac{2}{3}$ (3) $\frac{3}{4}$ (4) 2

45. 4.0 g of a gas occupies 22.4 litres at NTP. The specific heat capacity of the gas at constant volume is 5.0 $JK^{-1} mol^{-1}$. If the speed of sound in this gas at NTP is 952 ms^{-1}, then the heat capacity at constant pressure is

(Take gas constant R = 8.3 $JK^{-1} mol^{-1}$)

(1) 8.5 $JK^{-1} mol^{-1}$ (2) 8.0 $JK^{-1} mol^{-1}$

(3) 7.5 $JK^{-1} mol^{-1}$ (4) 7.0 $JK^{-1} mol^{-1}$

46. The coefficient of performance of a refrigerator is 5. If the temperature inside freezer is –20°C, the temperature of the surroundings to which it rejects heat is :

(1) 21°C (2) 31°C (3) 41°C (4) 11°C

47. An ideal gas is compressed to half its initial volume by means of several processes. Which of the process results in the maximum work done on the gas ?

(1) Isothermal (2) Adiabatic

(3) Isobaric (4) Isochoric

48. The value of coefficient of volume expansion of glycerin is $5 \times 10^{-4} K^{-1}$. The fractional change in the density of glycerin for a rise of 40°C in its temperature, is :-

(1) 0.010 (2) 0.015

(3) 0.020 (4) 0.025

NEET-I 2016

49. A refrigerator works between 4°C and 30°C. It is required to remove 600 calories of heat every second in order to keep the temperature of the refrigerated space constant. The power required is:

(Take 1 cal = 4.2 Joules)

(1) 2.365 W (2) 23.65 W

(3) 236.5 W (4) 2365 W

50. A black body is at a temperature of 5760 K. The energy of radiation emitted by the body at wavelength 250 nm is U_1, at wavelength 500 nm is U_2 and that at 1000 nm is U_3. Wien's constant, b = 2.88×10^6 nmK. Which of the following is correct?

(1) $U_1 = 0$ (2) $U_3 = 0$

(3) $U_1 > U_2$ (4) $U_2 > U_1$

51. Coefficient of linear expansion of brass and steel rods are α_1 and α_2. Lengths of brass and steel rods are ℓ_1 and ℓ_2 respectively. If $(\ell_2 - \ell_1)$ is maintained same at all temperatures, which one of the following relations holds good ?

(1) $\alpha_1\ell_2 = \alpha_2\ell_1$ (2) $\alpha_1\ell_2^2 = \alpha_2\ell_1^2$

(3) $\alpha_1^2\ell_2 = \alpha_2^2\ell_1$ (4) $\alpha_1\ell_1 = \alpha_2\ell_2$

52. The molecules of a given mass of a gas have r.m.s. velocity of 200 m/s at 27°C and $1.0 \times 10^5 N/m^2$ pressure. When the temperature and pressure of the gas are respectively, 127°C and $0.05 \times 10^5 N/m^2$, the r.m.s. velocity of its molecules in m/s is :

(1) $100\sqrt{2}$ (2) $\frac{400}{\sqrt{3}}$

(3) $\frac{100\sqrt{2}}{3}$ (4) $\frac{100}{3}$

53. A gas is compressed isothermally to half its initial volume. The same gas is compressed separately through an adiabatic process until its volume is again reduced to half. Then :-

(1) Compressing the gas isothermally will require more work to be done.

(2) Compressing the gas through adiabatic process will require more work to be done.

(3) Compressing the gas isothermally or adiabatically will require the same amount of work.

(4) Which of the case (whether compression through isothermal or through adiabatic process) requires more work will depend upon the atomicity of the gas.

54. A piece of ice falls from a height h so that it melts completely. Only one-quarter of the heat produced is absorbed by the ice and all energy of ice gets converted into heat during its fall. The value of h is :

[Latent heat of ice is 3.4×10^5 J/kg and g = 10 N/kg]

(1) 34 km (2) 544 km

(3) 136 km (4) 68 km

NEET-II 2016

55. Two identical bodies are made of a material for which the heat capacity increases with temperature. One of these is at 100 °C, while the other one is at 0°C. If the two bodies are brought into contact, then, assuming no heat loss, the final common temperature is :-

(1) less than 50 °C but greater than 0 °C

(2) 0 °C

(3) 50 °C

(4) more than 50 °C

56. A body cools from a temperature 3T to 2T in 10 minutes. The room temperature is T. Assume that Newton's law of cooling is applicable. The temperature of the body at the end of next 10 minutes will be :-

(1) $\frac{4}{3}T$ (2) T (3) $\frac{7}{4}T$ (4) $\frac{3}{2}T$

57. One mole of an ideal monatomic gas undergoes a process described by the equation PV^3 = constant. The heat capacity of the gas during this process is

(1) 2 R (2) R

(3) $\frac{3}{2}R$ (4) $\frac{5}{2}R$

58. The temperature inside a refrigerator is t_2°C and the room temperature is t_1°C. The amount of heat delivered to the room for each joule of electrical energy consumed ideally will be :-

(1) $\frac{t_2+273}{t_1-t_2}$ (2) $\frac{t_1+t_2}{t_1+273}$

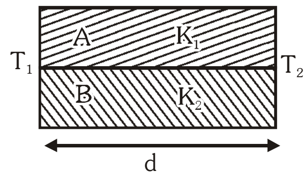
(3) $\frac{t_1}{t_1-t_2}$ (4) $\frac{t_1+273}{t_1-t_2}$

59. A given sample of an ideal gas occupies a volume V at a pressure P and absolute temperature T. The mass of each molecule of the gas is m. Which of the following gives the density of the gas ?

(1) P/(kTV) (2) mkT (3) P/(kT) (4) Pm/(kT)

NEET(UG)-2017

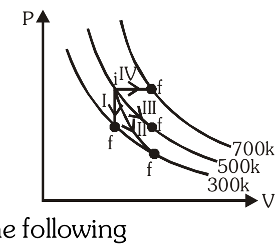
60. Two rods A and B of different materials are welded together as shown in figure. Their thermal conductivities are K_1 and K_2. The thermal conductivity of the composite rod will be :-



(1) $\frac{3(K_1+K_2)}{2}$ (2) $K_1 + K_2$

(3) $2(K_1 + K_2)$ (4) $\frac{K_1+K_2}{2}$

61. Thermodynamic processes are indicated in the following diagram :



Match the following

	Column-1		Column-2
P.	Process I	a.	Adiabatic
Q.	Process II	b.	Isobaric
R.	Process III	c.	Isochoric
S.	Process IV	d.	Isothermal

(1) P → c, Q → a, R → d, S → b

(2) P → c, Q → d, R → b, S → a

(3) P → d, Q → b, R → a, S → c

(4) P → a, Q → c, R → d, S → b

62. A spherical black body with a radius of 12 cm radiates 450 watt power at 500 K. If the radius were halved and the temperature doubled, the power radiated in watt would be :-

(1) 450 (2) 1000

(3) 1800 (4) 225

63. A carnot engine having an efficiency of $\frac{1}{10}$ as heat engine, is used as a refrigerator. If the work done on the system is 10 J, the amount of energy absorbed from the reservoir at lower temperature is :-

(1) 90 J (2) 99 J

(3) 100 J (4) 1 J

64. A gas mixture consists of 2 moles of O_2 and 4 moles of Ar at temperature T. Neglecting all vibrational modes, the total internal energy of the system is:-

(1) 15 RT (2) 9 RT

(3) 11 RT (4) 4 RT

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65. A sample of 0.1 g of water at 100°C and normal pressure (1.013×10^5 Nm^{-2}) requires 54 cal of heat energy to convert to steam at 100°C. If the volume of the steam produced is 167.1 cc, the change in internal energy of the sample, is :-

(1) 104.3 J (2) 208.7 J

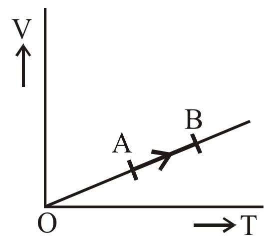
(3) 42.2 J (4) 84.5 J

66. The power radiated by a black body is P and it radiates maximum energy at wavelength λ_0. If the temperature of the black body is now changed so that it radiates maximum energy at wavelength $\frac{3}{4}\lambda_0$, the power radiated by it becomes nP. The value of n is :-

(1) $\frac{3}{4}$ (2) $\frac{4}{3}$

(3) $\frac{256}{81}$ (4) $\frac{81}{256}$

67. The volume (V) of a monatomic gas varies with its temperature (T), as shown in the graph. The ratio of work done by the gas, to the heat absorbed by it, when it undergoes a change from state A to state B, is :-



(1) $\frac{2}{5}$ (2) $\frac{2}{3}$ (3) $\frac{1}{3}$ (4) $\frac{2}{7}$

68. The efficiency of an ideal heat engine working between the freezing point and boiling point of water, is :-

(1) 26.8% (2) 20%

(3) 6.25% (4) 12.5%

69. At what temperature will the rms speed of oxygen molecules become just sufficient for escaping from the Earth's atmosphere ?

(Given :

Mass of oxygen molecule (m) = 2.76×10^{-26} kg

Boltzmann's constant $k_B = 1.38 \times 10^{-23}$ J K^{-1}) :-

(1) 2.508×10^4 K

(2) 8.360×10^4 K

(3) 5.016×10^4 K

(4) 1.254×10^4 K

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70. In which of the following processes, heat is neither absorbed nor released by a system ?

(1) isothermal (2) adiabatic

(3) isobaric (4) isochoric

71. Increase in temperature of a gas filled in a container would lead to :

(1) increase in its mass

(2) increase in its kinetic energy

(3) decrease in its pressure

(4) decrease in intermolecular distance

72. A copper rod of 88 cm and an aluminum rod of unknown length have their increase in length independent of increase in temperature. The length of aluminum rod is : ($\alpha_{Cu} = 1.7 \times 10^{-5}\ K^{-1}$ and $\alpha_{Al} = 2.2 \times 10^{-5}\ K^{-1}$)

(1) 6.8 cm (2) 113.9 cm

(3) 88 cm (4) 68 cm

73. The unit of thermal conductivity is :

(1) $J\ m\ K^{-1}$ (2) $J\ m^{-1}\ K^{-1}$

(3) $W\ m\ K^{-1}$ (4) $W\ m^{-1}\ K^{-1}$

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74. An object kept in a large room having air temperature of 25°C takes 12 minutes to cool from 80°C to 70°C.
The time taken to cool for the same object from 70°C to 60°C would be nearly :-

(1) 10 min (2) 12 min

(3) 20 min (4) 15 min

75. A deep rectangular pond of surface area A, containing water (density=ρ, specific heat capacity=s), is located in a region where the outside air temperature is at a steady value of –26°C. The thickness of the frozen ice layer in this pond, at a certain instant is x.
Taking the thermal conductivity of ice as K, and its specific latent heat of fusion as L, the rate of increase of the thickness of ice layer, at this instant would be given by :-

(1) 26K/ρr(L–4s)

(2) $26K/(\rho x^2 – L)$

(3) 26K/(ρxL)

(4) 26K/ρr(L+4s)

76. The value of $\gamma\left(=\frac{C_p}{C_v}\right)$, for hydrogen, helium and another ideal diatomic gas X (whose molecules are not rigid but have an additional vibrational mode), are respectively equal to :-

(1) $\frac{7}{5}, \frac{5}{3}, \frac{9}{7}$ (2) $\frac{5}{3}, \frac{7}{5}, \frac{9}{7}$

(3) $\frac{5}{3}, \frac{7}{5}, \frac{7}{5}$ (4) $\frac{7}{5}, \frac{5}{3}, \frac{7}{5}$

77. 1g of water, of volume 1 cm^3 at 100°C, is converted into steam at same temperature under normal atmospheric pressure $(\simeq 1 \times 10^5 Pa)$. The volume of steam formed equals 1671 cm^3. If the specific latent heat of vaporisation of water is 2256 J/g, then the change in internal energy is,

(1) 2423 J (2) 2089 J

(3) 167 J (4) 2256 J

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	**2**	**2**	**1**	**3**	**2**	**4**	**2**	**1**	**1**	**4**	**3**	**1**	**3**	**2**	**2**
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	**2**	**3**	**4**	**4**	**4**	**2**	**2**	**3**	**3**	**3**	**3**	**3**	**4**	**2**	**3**
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	**1**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**1**	**2**	**2**	**2**	**3**	**3**	**2**
Que.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	**2**	**2**	**3**	**3**	**4**	**4**	**2**	**2**	**3**	**4**	**4**	**2**	**4**	**4**	**4**
Que.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
Ans.	**1**	**3**	**1**	**3**	**2**	**3**	**1**	**1**	**2**	**2**	**2**	**4**	**4**	**4**	**3**
Que.	76	77													
Ans.	**1**	**2**													