1to1 GURU
Learn to Lead, Learn to Succeed

Date :-17/02/2022 **Time :-120 Minutes** **Exam Name :-1to1Guru-TestSeries#2** **Mark :- 200**

1. The $IP_1, IP_2, IP_3, IP_4,$ and IP_5 of an element are 7.1, 14.3, 34.5, 46.8, 162.2 eV respectively. The element is likely to be:
(A) Na (B) Si (C) F (D) Ca
Ans:-(B)
Solution:-(b) The jump in IP values exist in IP_5 and thus, removal of fifth electron occurs from inner shell. Thus, element contains four electrons in its valency shell.

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2. 6.4 g of SO_2 at 0°C and 0.99 atm pressure occupies a volume of 2.241 L. Predict which of the following is correct?
(A) The gas is ideal (B) The gas is real with intermolecular attraction (C) The gas is real without intermolecular repulsion (D) The gas is real with intermolecular repulsion greater than intermolecular attraction
Ans:-(A)
Solution:-(a) 6.4 g of SO_2 at 0°C and 0.99 atm pressure occupies a volume of 2.241 L. It indicates that the gas is ideal.

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3. Which one of the following arrangements represents the correct order of electron gain enthalpy (with negative sign) of the given atomic species? (2005)
(A) $S < O < Cl < F$ (B) $Cl < F < S < O$ (C) $F < Cl < O < S$ (D) $O < S < F < Cl$
Ans:-(D)
Solution:-(d): The molar enthalpy change accompanying the addition of an electron to an atom (or ion) is known as electron gain enthalpy Generally it increases on moving from left to right in a period and in a group, it decreases as the size increases.
Exception: Because of the small size of F , electron ? electron repulsion present in its relatively compact $2p$? subshell, do not easily allow the addition of an extra electron. On the other hand, Cl because of its comparatively bigger size than F , allows the addition of an extra electron more easily
$O < S < F <$ Cl
$-1.48 \quad -2.0 \quad -3.6 \quad -3.8$

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4. The double bonds between the two carbon atoms in ethylene consists of:
(A) Two sigma-bonds at right angles to each other. (B) One sigma-bond and one pi-bond (C) Two pi-bonds at right angles to each other (D) Two pi-bonds at an angle of 60° to each other
Ans:-(B)
Solution:-(b) $CH_2 = CH_2$ has 1σ -and 1π -in between two sp^2 -hybridized carbon.

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5. The ground state term symbol for an electronic state is governed by
(A) Heisenberg s principle (B) Hund s rule (C) Aufbau principle (D) Pauli exclusion principle
Ans:-(B)
Solution:-(b) In the ground state of an atom the number of states is limited by Hund s rule. There are $\frac{n!}{r! \cdot (n-r)!}$ ways in which electron in an orbital may be arranged which do not violate Pauli s exclusion principle.
Where, n =number of maximum electrons that can be filled in an orbital and r =number of electrons present in orbital.
But the valid ground state term is calculated by Hund s rule of maximum multiplicity. As Hund s rule gives the most stable electronic configuration of electrons.

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6. A balloon filled with methane CH_4 is pricked with a sharp point and quickly plunged into a tank of hydrogen at the same pressure. After sometime, the balloon will have
(A) Enlarged (B) Collapsed (C) Remained unchanged in size (D) Ethylene (C_2H_4) inside it
Ans:-(A)
Solution:-(a) Rate of diffusion of hydrogen is more than methane thus the balloon will have enlarged

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7. Density of a 2.05 M solution of acetic acid in water is 1.02g/mL. The molality of the solution is:
(A) $1.14\ \text{mol kg}^{-1}$ (B) $3.28\ \text{mol kg}^{-1}$ (C) $2.28\ \text{mol kg}^{-1}$ (D) $0.44\ \text{mol kg}^{-1}$
Ans:-(C)
Solution:-(c) $m = \dfrac{\text{moles of } CH_3COOH}{\text{wt. of solvent in kg}} = \dfrac{2.05 \times 1000}{897} = 2.285$
wt. of solvent = wt. of solution-wt. of solute
$= [1000 \times 1.02 - 2.05 \times 60] = 897\ \text{g}$

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8. A gas can expand from 100 mL to 250 mL under a constant pressure of 2 atm. The work done by gas is
(A) 30.38 J (B) 25 J (C) 5 kg J (D) 16 J
Ans:-(A)
Solution:-(a) $V_1 = 100$ mL
$V_2 = 250$ mL
Pressure $p = 2$ atm or $2 \times 1.01 \times 10^5\ \text{Nm}^{-2}$
Work done by the gas
$W = p\Delta V$ or $p(V_2 - V_1)$
Put the value in given formula
$W = 2 \times 1.01 \times 10^5(0.250 \times 10^{-3} - 0.100 \times 10^{-3})$
$= 2 \times 1.01 \times 10^5 \times 0.15 \times 10^{-3}$
= 30.30 J

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9. According to IUPAC nomenclature, a newly discovered element has been named as Uun. The atomic number of the element is
(A) 111 (B) 112 (C) 109 (D) 110
Ans:-(D)
Solution:-

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10. For the formation of covalent bond, the difference in the value of electronegativities should be:
(A) Equal to or less than 1.7 (B) More than 1.7 (C) 1.7 or more (D) None of the above
Ans:-(A)
Solution:-(a) If difference in electronegativity in between two atoms is 1.7, the molecule possesses 50% covalent +50% ionic nature.

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11. Calculate the pOH of asolution at 25^0C that contains $1 \times 10^{-10}M$ ofhydronium ions, i.e. H_3O^+ (2007)
(A) 4.000 (B) 9.000 (C) 1.000 (D) 7.000
Ans:-(A)
Solution:-: Given, $[H_3O^+] = 1 \times 10^{-10}$ or, $pH = 10$ Now at 25^oC , pH + pOH = $pK_w = 14$
or, $pOH = 14 - pH = 14 - 10 = 4$

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12. 50 mL of hydrogen diffuses through small hole from a vessel in 20 min. Time taken for 40 mL of oxygen to diffuse out under similar conditions will be
(A) 12 min (B) 32 min (C) 8 min (D) 64 min
Ans:-(D)

Solution:-(d) $\frac{r_{H_2}}{r_{O_2}} = \sqrt{\frac{M_{O_2}}{M_{H_2}}}$

$\frac{50/20}{40/t} = \sqrt{\frac{32}{2}} \qquad \left(\because r = \frac{V}{t}\right)$

$\frac{t}{16} = 4 \Rightarrow t = 64 \text{ min}$

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13. The Joule-Thomson coefficient for a gas is zero at:
(A) Inversion temperature (B) Critical temperature (C) Absolute temperature (D) Below $0°C$
Ans:-(A)
Solution:-(1) At inversion temperature gases show neither cooling nor heating on subjecting to Joule-Thomson effect.

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14. A gaseous mixture of 2 moles of A, 3 moles of B, 5 moles of C and 10 moles of D is contained in a vessel. Assuming that gases are ideal and the partial pressure of C is 1.5 atm, total pressure is
(A) 3 atm (B) 6 atm (C) 9 atm (D) 15 atm
Ans:-(B)
Solution:-(b) Partial pressure $= \frac{\text{no.of moles of gas} \times p_{\text{Total}}}{\text{total no.of moles}}$

$1.5 = \frac{5 \times p_{\text{total}}}{2+3+5+10}$

$\frac{1.5 \times 20}{5} = p_{\text{total}}$

$p_{\text{total}} = 6 \text{ atm}$

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15. An electron beam is accelerated through a potential difference of 10,000 volt. The de-Broglie wavelength of the electron beam is
(A) 0.123 A° (B) 0.356 A° (C) 0.186 A° (D) 0.258 A°
Ans:-(A)
Solution:-(a) $\lambda = \frac{h}{\sqrt{2eVm_e}}$

$e = 1.6 \times 10^{-19} \text{C}, V = 10{,}000 \text{ V}, m_e = 9.1 \times 10^{-31} \text{ kg}$

$\lambda = \frac{6.63 \times 10^{-34}}{\sqrt{2 \times 1.6 \times 10^{-19} \times 10{,}000 \times 9.1 \times 10^{-31}}} = 0.123 \text{ Å}$

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16. Which of the following is non-permissible?
(A) $n = 4, l = 3, m = 0$ (B) $n = 4, l = 2, m = 1$ (C) $n = 4, l = 4, m = 1$ (D) $n = 4, l = 0, m = 0$
Ans:-(C)
Solution:-(c) According to rules of quantum number the possible values of n, l, m and s are
$n = 1$ to ∞ any whole number
$l = 0$ to $(n-1)$ for every value of n
$m = -l$ to zero to $+l$ for every value of l
$s = \frac{1}{2}$ or $-\frac{1}{2}$
17. $n = 4, l = 3, m = 0$
All the values are according to rules.
18. $n = 4, l = 2, m = 1$
All the values are according to rules.
19. $n = 4, l = 4, m = 1$
$\because$ The value of l can have maximum $(n-1)$ value $i.e.$, 3 in this case.
$\therefore$ This set of quantum numbers is non-permissible.

20. $n = 4, l = 0, m = 0$
All the values are according to rules.
∴ Choice (a), (b) and (d) are permissible.

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17. Which of the following oxides is most acidic in nature?
(A) BeO (B) MgO (C) CaO (D) BaO
Ans:-(A)
Solution:-(a) BeO is most acidic in nature amongst the given choices because acidity of oxides increases with decreases in electropositive character of central atom.

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18. Uncertainty in position of a particle of 25 g in space is 10^{-5}m . Hence, uncertainty in velocity (ms^{-1}) is (Planck s constant $h = 6.6 \times 10^{-34}$Js)
(A) 2.1×10^{-28} (B) 2.1×10^{-34} (C) 0.5×10^{-34} (D) 5.0×10^{-24}
Ans:-(A)
Solution:-(a) $\Delta x.\Delta v \geq \frac{h}{4\pi m}$

$$\Delta x \geq \frac{6.62 \times 10^{-34}}{4 \times 3.14 \times 25 \times 10^{-3} \times 10^{-5}}$$
$$= 2.10 \times 10^{-28}\text{m}$$

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19. The number of water molecules is maximum in (2015)
(A) 1.8 gram of water (B) 18 grams of water (C) 18 moles of water (D) 18 molecules of water.
Ans:-(C)
Solution:-(c):1.8 gram of water $= \frac{6.023 \times 10^{23}}{18} \times 1.8$
$= 6.023 \times 10^{22}$ molecules 18-gram of water $= 6.023 \times 10^{23}$ molecules
18 moles of water $= 18 \times 6.023 \times 10^{23}$ molecules

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20. One litre N_2, $\frac{7}{8}$ litre O_2 and 1 litre CO are taken in a mixture under indentical conditions of P and T. The amount of gases present in mixture is given by:
(A) $w_{N_2} = w_{O_2} > w_{CO}$ (B) $w_{N_2} = w_{CO} > w_{O_2}$ (C) $w_{N_2} = w_{O_2} = w_{CO}$ (D) $w_{CO} > w_{N_2} > w_{O_2}$
Ans:-(C)
Solution:-(c) $W_{N_2} = \frac{1 \times P \times 28}{RT}; W_{CO} = \frac{1 \times P \times 28}{RT}; W_{O_2} = \frac{7}{8} \times \frac{P \times 32}{RT}$

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21. The empirical formula of a compound is CH_2. One mole of this compound has a mass of 42 g. Its molecular formula is
(A) C_3H_6 (B) C_3H_8 (C) CH_2 (D) C_2H_2
Ans:-(A)

Solution:-(a) Weight of empirical formula
$CH_2 = 12 + (1 \times 2)$
$= 12 + 2$
$= 14$
Mass of one mole of the compound=its molecular weight
=42

$$n = \frac{\text{mol.wt.}}{\text{empirical formula wt.}} = \frac{42}{14} = 3$$

∴ Mol. formula=(Empirical formula $\times n$)
$= (CH_2) \times 3 = C_3H_6$

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22. What is the maximum number of electrons in an atom that can have the following quantum numbers

$n = 4, m_1 = +1$?
(A) 4 (B) 15 (C) 3 (D) 6
Ans:-(D)
Solution:-(d) $n = 4, m_l = +1$
$m_1 = +1$ shows the p -subshell, the maximum number of electron will be six.

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23. For the reaction, $Na_2CO_3 + 2HCl \rightarrow NaCl + H_2O + CO_2$ Equivalent weight of Na_2CO_3 is
(A) $\frac{M}{2}$ (B) M (C) $2M$ (D) $\frac{M}{4}$
Ans:-(A)
Solution:-(a) $Na_2CO_3 + 2HCl \rightarrow NaCl + H_2O + CO_2$
In the above reaction equivalent weight of Na_2CO_3 is $\frac{M}{2}$ because 2 moles of Na^+ being transferred per mole of Na_2CO_3.

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24. The orbital cylindrically symmetrical about x -axis is:
(A) p_z (B) p_y (C) p_x (D) d_{xz}
Ans:-(C)
Solution:-(3) p_x orbital has two lobes on x -axis.

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25. The temperature at which real gases obey the ideal gas laws over a wide range of pressure is called
(A) Critical temperature (B) Boyle temperature (C) Inversion temperature (D) Reduced temperature
Ans:-(B)
Solution:-(b) Temperature at which real gas obeys the gas laws over a wide range of pressure is called Boyle s temperature
$T_b = \frac{a}{Rb}$

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26. The tenth elements in the Periodic Table resembles with the
(A) First period (B) Second period (C) Fourth period (D) Ninth period
Ans:-(B)
Solution:-(b) Each period consists of a series of elements whose atoms have the same principal quantum number (n) of the outermost shell, ie , in second period, $n = 2$, this shell has four orbitals (one $2s$ and three $2p$) which can have eight electrons, hence second period contain 8 elements from atomic number 3 to 10

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27. A certain mass of gas occupies a volume of 300 cc at $27°C$ and 620 mm pressure. The volume of this gas at $47°C$ and 640 mm pressure will be
(A) 400 cc (B) 510 cc (C) 310 cc (D) 350 cc
Ans:-(C)
Solution:-(c) Given initial volume $(V_1) = 300$ cc, initial temperature $(T_1) = 27°C = 300$ K, initial pressure $(p_1) = 620$ mm, final temperature $(T_2) = 47°C = 320$ K and final pressure $(p_2) = 640$ mm. We know from the general gas equation

$$\frac{p_1V_1}{T_1} = \frac{p_2V_2}{T_2}$$
$$= \frac{620 \times 300}{300} = \frac{600 \times V_2}{320}$$
$$= 310 \text{ cc}$$

(where, V_2 is the final volume of the gas)

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28. An electron is moving in Bohr s fourth orbit. Its de-Broglie wavelength is λ . What is the circumference of the fourth orbit?

(A) $\frac{2}{\lambda}$ (B) 2λ (C) 4λ (D) $\frac{4}{\lambda}$

Ans:-(C)

Solution:-(c) According to Bohr s concept, an electron always move in the orbit with angular momentum (mvr) equal to $nh/2\pi$.

$\therefore mvr = \frac{nh}{2\pi}$

or $r = \frac{n}{2\pi}.\left(\frac{h}{mv}\right)$

or $r = \frac{n\lambda}{2\pi}$ (From de-Broglie equation, $\lambda = \frac{h}{mv}$)

for fourth orbit ($n = 4$)

$r = \frac{2\lambda}{\pi}$

$\therefore$ Circumference = $2\pi r = 2\pi \times \frac{2\lambda}{\pi} = 4\lambda$

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29. Based on kinetic theory of gases following laws can be proved

(A) Boyle s law (B) Charles law (C) Avogadro s law (D) All of these

Ans:-(D)

Solution:-(d) Boyle s law, Charles law and Avogadro s law can be proved on the basis of kinetic theory of gases.

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30. Valency means:

(A) Combining capacity of an element (B) Atomicity of an element (C) Oxidation number of an element (D) None of the above

Ans:-(A)

Solution:-(a) It is the definition of valency.

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31. The mass of one mole of electron is:

(A) 0.55 mg (B) 0.008 mg (C) 1.008 mg (D) 0.184 mg

Ans:-(A)

Solution:-(a) Mass on one mole electron

$= N \times m_e = 6.023 \times 10^{23} \times 9.108 \times 10^{-31}$kg

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32. Carnallite in solution in water shows the properties of

(A) K^+, Mg^{2+}, Cl^- (B) $K^+, Cl^-, SO_4^{2-}, Br^-$ (C) K^+, Mg^{2+}, CO_3^{2-} (D) K^+, Mg^{2+}, Cl^-, Br^-

Ans:-(A)

Solution:-(a) Ionic compounds break into their constituent ions when dissolved in water.

Carnallite is double salt having composition,

$KCl.MgCl_2.6H_2O$. It gives K^+, Cl^- and Mg^{2+} ions when dissolved in water.

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33. Which species has lone pair on central atom?

(A) CCl_4 (B) CH_4 (C) NH_4^+ (D) H_2O

Ans:-(D)

Solution:-(d) O has two lone pair of electrons.

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34. The electronic configuration of C r^{3+} is

(A) $[Ar]3d^4 4s^2$ (B) $[Ar]3d^3 4s^0$ (C) $[Ar]3d^2 4s^1$ (D) $[Ar]3d^5 4s^1$

Ans:-(B)

Solution:-(b) Cr (24): $[Ar]3d^5 4s^1$

Cr^{3+}: $[Ar]3d^3 4s^0$

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35. 10 g each of CH_4 and O_2 are kept in cylinders of same volume under same temperatures, give the pressure ratio of two gases
(A) 2 : 1 (B) 1 : 4 (C) 2 : 3 (D) 3 : 4
Ans:-(A)
Solution:-(a) $pV = nRT$
$V = \text{same}$
$R = \text{constant}$
$T = \text{same}$
$p \propto n$
or $p \propto \frac{w}{M}$ but w is same.
So, $p \propto \frac{1}{M}$
$\frac{p_{CH_4}}{p_{O_2}} = \frac{M_{O_2}}{M_{CH_4}} = \frac{32}{16} = \frac{2}{1}$

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36. Matter is anything which occupies . . . A . . . and has . . . B . . . . Here A and B are
(A) Density and mass (B) Volume and mass (C) Space and mass (D) None of these
Ans:-(C)
Solution:-

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37. In two vessels of 1 L each at the same temperature 1 g of H_2 and 1 g of CH_4 are taken, for these
(A) V_{rms} values will be same (B) Kinetic energy per mol will be same (C) Total kinetic energy will be same (D) Pressure will be same
Ans:-(B)
Solution:-(b) $KE = \frac{3}{2} kT$
Where, k is constant.
$KE \propto T$
Here the temperature is same. Hence, for 1 g of H_2 and 1 g of CH_4 which are taken in two vessels, of 1 L each at same temperature, the kinetic energy per mole will be the same.

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38. A certain gas takes three times as long to eff use out as helium. Its molecular mass will be (Mains 2012)
(A) 27 u (B) 36 u (C) 64 u (D) 9 u
Ans:-(B)
Solution:-(b): According to Graham s law of diffusion
$r \propto \frac{1}{\sqrt{d}} \propto \frac{1}{\sqrt{M}} = \frac{r_1}{r_2} = \sqrt{\frac{M_2}{M_1}}$
Rate of diffusion $= \frac{Volume of\ gas\ diffused (V)}{\text{Time taken } (t)}$

$\frac{V_1/t_1}{V_2/t_2} = \sqrt{\frac{M_2}{M_1}}$
If same volume of two gases diffuse, then $V_1 = V_2$
$\frac{t_2}{t_1} = \sqrt{\frac{M_2}{M_1}}$
Here $t_2 = 3t_1, M_1 = 4u, M_2 = ?$
$\frac{3t_1}{t_1} = \sqrt{\frac{M_2}{4}} \Rightarrow 3 = \sqrt{\frac{M_2}{4}}$
$= 9 = \frac{M_2}{4} \Rightarrow M_2 = 36u$

39. The molecule having largest dipole moment among the following is
(A) CHI_3 (B) CH_4 (C) $CHCl_3$ (D) CCl_4
Ans:-(C)
Solution:-(c) $CHCl_3$ molecule has largest dipole moment among the given species.

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40. The electronic configuration of most electronegative elements is
(A) $1s^2, 2s^2, 2p^5$ (B) $1s^2, 2s^2, 2p^4, 3s^1$ (C) $1s^2, 2s^2, 2p^6, 3s^1, 3p^1$ (D) $1s^2, 2s^2, 2p^6, 3s^2, 3p^5$
Ans:-(A)
Solution:-(a) 1. $1s^2, 2s^2, 2p^5 = 2, 7$
(∵ It has capacity to accept electron therefore, it is electronegative.)
(b) $1s^2, 2s^2, 2p^4, 3s^1 = 2, 6, 1$
(configuration not correct $(2p^4)$)
(c) $1s^2, 2s^2, 2p^6, 3s^1, 3p^5 = 2, 8, 6$
(configuration not correct $3s^1$)
(d) $1s^2, 2s^2, 2p^6, 3s^2, 3p^5 = 2, 8, 7$
(∵ It has capacity to accept electron therefore, it is electronegative)
Smaller the size, greater will be electronegativity. Since, element in choice (a) is smaller in size, it will be more electronegative than (d). In choice (a) the atomic number of element is 9, which is of fluorine and it is the most electronegative element of the Periodic Table.

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41. If two molecules of A and B having mass 100 kg and 64 kg and rate of diffusion of A is 12×10^{-3}, then what will be the rate of diffusion of B?
(A) 15×10^{-3} (B) 64×10^{-3} (C) 5×10^{-3} (D) 46×10^{-3}
Ans:-(A)
Solution:-(a) According to Graham s law of diffusion

$$\text{Rate of diffusion } (r) \propto \frac{1}{\sqrt{d}}$$

$$\text{Molecular weight } (M) = 2 \times \text{vapour density}$$

$$\frac{r_1}{r_2} = \sqrt{\frac{M_2}{M_1}}$$

$$M_A = \left(\frac{100}{2}\right) \text{ kg/molecule}$$

$$M_B = \left(\frac{64}{2}\right) \text{ kg/molecule}$$

$$r_A = 12 \times 10^{-3} \text{ and } r_B = ?$$

$$\frac{r_A}{r_B} = \sqrt{\frac{d_B}{d_A}} = \sqrt{\frac{M_B}{M_A}}$$

$$\frac{12 \times 10^{-3}}{r_B} = \sqrt{\frac{64/2}{100/2}} = \sqrt{\frac{64}{100}} = \frac{8}{10}$$

$$r_B = \frac{12 \times 10^{-3} \times 10}{8}$$

$$= 15 \times 10^{-3}$$

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42. If 250 mL of a solution contains 2.7 g of H_3PO_4, the normality of the solution is:
(A) 4.0 (B) 0.33 (C) 0.4 (D) 0.1
Ans:-(B)
Solution:-(b) $N = \frac{2.7 \times 1000}{(98/3) \times 250} = 0.33$

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43. The pH of an aqueous solution containing
(A) 2.523 (B) 3.0 (C) 2.471 (D) None of these
Ans:-(A)
Solution:-(a) $\mathrm{pH} = -\log[\mathrm{H}^+]$
$= -\log(3 \times 10^{-3})$
$= 3 - \log 3$
$= 3 - 0.4771$
$= 2.5229$

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44. At what temperature will most probable speed of the molecules of the second number of alkyne series be the same as that of SO_2 at $527°\mathrm{C}$?
(A) $347°\mathrm{C}$ (B) $227°\mathrm{C}$ (C) $800°\mathrm{C}$ (D) $254°\mathrm{C}$
Ans:-(B)
Solution:-(b) Second member of alkyne series is $\mathrm{C}_3\mathrm{H}_4$. $(m - 40)$
$\mathrm{C}_3\mathrm{H}_4 \qquad \mathrm{SO}_2$
$$\sqrt{\frac{2RT_1}{M_1}} = \sqrt{\frac{2RT_2}{M_2}}$$
$$T_1 = T_2\left(\frac{M_1}{M_2}\right) = 800\ \left(\frac{40}{64}\right)\mathrm{K}$$
$= 500\ \mathrm{K} = 227°\mathrm{C}$

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45. Bond energy of covalent O H bond in water is:
(A) Greater than bond energy of hydrogen bond (B) Equal to bond energy of hydrogen bond (C) Less than bond energy of hydrogen bond (D) None of the above
Ans:-(A)
Solution:-(a) H-bonding is weakest bonding.

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46. The maximum energy is possessed by an electron, when it is present
(A) In nucleus (B) In ground state (C) In first excited state (D) At infinite distance from the nucleus
Ans:-(D)
Solution:-(4)
We know that $E_n \propto \left[-\frac{1}{n^2}\right]$, where n is the number of orbit.
Hence, as the value of n increases, energy of the electron also increases. Hence, when n becomes infinite, energy also becomes infinite. Hence, due to this reason maximum energy is possessed by an electron, when it is present at infinite distance from the nucleus.

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47. Which of the following oxides is not expected to react with sodium hydroxide?
(A) BeO (B) $\mathrm{B}_2\mathrm{O}_3$ (C) CaO (D) SiO_2
Ans:-(C)
Solution:-(c) CaO is basic oxide.

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48. Equimolar solutions of the following substances were prepared separately. Which one of these will record the highest pH value? (2012)
(A) $BaCl_2$ (B) $AlCl_3$ (C) $LiCl$ (D) $BeCl_2$
Ans:-(A)
Solution:-: $BaC1_2$ is made up ofBa $(OH)_2$ and HCl.
$AlC1_3$ is made up ofA1 $(OH)_3$ and HCl.
$LiC1$ is made up ofLiOH and HCl.
$BeC1_2$ is made up of Be $(OH)_2$ and HCl.
$Ba(OH)_2$ is strongest base among the given options thus have maximum pH.

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49. A reversible chemical reaction is having two reactants, in equilibrium. If the concentration of the reactants are doubled then the equilibrium constant will
(A) Bo doubled (B) Become one fourth (C) Be halved (D) Remain the same
Ans:-(D)
Solution:-

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50. Number of g-atoms of an element in one atom are:
(A) 6.023×10^{23} (B) 1.66×10^{-24} (C) 2×10^{23} (D) None of these
Ans:-(B)
Solution:-(2) N atom = 1 g atom
