CHEMISTRY

BOOKS - SAI CHEMISTRY (TELUGU ENGLISH)

EAMCET - 2018 (TS) SHIFT - 2

Chemistry

1. Calculate the number of protons, neutrons and electrons respectively in $^{14}_{7}N^{3-}$

A. $7, 10, 7$

B. $7, 7, 10$

C. $10, 7, 7$

D. $7, 7, 7$

Answer: B

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2. The order of filing of electrons in orbitals I Ti is

A. 1s, 2s, 2p, 3s, 3p, 3d, and 4s

B. 1s, 2s, 2p, 3s, 3p, 4s and 3d

C. 1s, 2s, 2p, 3s, 4s, 3p and 3d

D. 1s, 2s, 2p, 3s, 3d, 3p and 4s

Answer: B

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3. The symbol of an element is Une. Its atomic number is

A. 110

B. 109

C. 101

D. 108

Answer: B

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4. Helium molecule is two times heavier than hydrogen molecule at 298 K . According to kinetic theory, the average kinetic energy of helium at 298 K is

A. Two times higher than a hydrogen molecule

B. Four times higher than a hydrogen molecule

C. Same as that of hydrogen molecule

D. Half of a hydrogen molecule

Answer: C

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5. The ratio between the most probable speed of N_2 at 400 K and Co at 800 K is **(molar mass of** $N_2 = 28gmol^{-1}$**, molar mass of** $CO = 28gmol^{-1}$**)**

A. 0.75

B. 0.25

C. 0.707

D. 1.414

Answer: C

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6. Relative abundance (in percentage) of $'^{14}C$ isotope is

A. 1.1

B. 2×10^{-10}

C. 2×10^{-4}

D. 2×10^{-5}

Answer: B

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7. For the formation of NH_3 from H_2 at 500 K, The concentration of N_2, H_2 and NH_3 at equilibrium are $1.5 \times 10^{-2}M, 3.0x10^{-2}M$ and $1.2 \times 10^{-2}M$, respectively. The equilibrium constant for the reverse reaction is

A. 3.56×10^{2}

B. 2.81×10^{-3}

C. 3.56×10^{-2}

D. 2.81×10^{3}

Answer: B

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8. Estimate the approximate PK_a of $0.5MCH_3COOH$. Degree of dissociation (ionization) is 0.15.

$(\log 1.32 = 0.12)$

A. 2.0

B. 1.5

C. 1.88

D. 0.15

Answer: C

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9. The natural abundance of isotopes of hydrogen is

A. ${}_1^1H = 99.985\,\%\,,\,{}_1^2D = 0.015\,\%$

B.

$$_1^1H = 99.985\,\% \, , _1^2D = 0.015\,\% \, , _1^3T = 10^{-16}\,\%$$

C. $_1^1H = 99.100\,\% \, , _1^2D = 0.900\,\%$

D.

$$_1^1H = 99.100\,\% \, , _1^2D = 0.900\,\% \, , _1^3T = 10^{15}\,\%$$

Answer: A

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10. Calcium on heating in N_2 yields an ionic compound A, which reacts with water to give

$Ca(OH)_2$ and a gas B. Identify A and B

A. CaN_2, NO

B. Ca_3, N_2, NH_3

C. CaN_2, NH_3

D. $Ca - 3N_2, NO$

Answer: B

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11. Give the formulae of

(a)Borax , (b)Colemanite

A. $Na_2B_4O_7, 5H_2O$

B. $Na_2B_4O_7, 7H_2O$

C. $Na_2B_4O_7, 10H_2O$

D. $Na_2B_4O_7, 2H_2O$

Answer: C

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12. In which allotrop of carbon does each atom form four bonds with other carbon atoms?

A. Graphite

B. Graphite and C_{60}

C. Diamond

D. Diamond and C_{60}

Answer: C

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13. Which of the following chemicals is NOT involved in photochemical smog formation

A. SO_2

B. O_3

C. NO_2

D. NO

Answer: A

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14. Number of possible constitutional isomers of alkane with formula C_6H_{14} is

A. 3

B. 5

C. 2

D. 10

Answer: B

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15. In the process of formation of nitronium ion, nitric acid acts as

A. a base

B. an acid

C. a catalyst

D. a solvent

Answer: A

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16. Calculate the approximate ΔT_b (in K) for 0.001 molar KCl solution if its van's Hoff factors is 1.98.

[K_b of water is $0.52 K kg mol^{-1}$]

A. 1.03

B. 1.03×10^{-3}

C. 1.03×10^{-5}

D. $1.\ 03 \times 10^{-1}$

Answer: B

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17. Which of the following correctly represents Nernst equation?

[P = products : R = reactants]

A. $\Delta G = \Delta G^0 + 2.303Rt\dfrac{\log([P])}{[R]}$

B. $\Delta G = \Delta G^0 - 2.303RT\dfrac{\log([P])}{[R]}$

C. $\Delta G = \Delta G^0 + 2.303RT\dfrac{\log([R])}{[P]}$

D. $\Delta G = \Delta G^0 - 2.303RT\dfrac{\log([R])}{[P]}$

Answer: A

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18. Aqueous ammonia readily dissolves $AgCI$ because

A. NH_3 **molecules readily solvate** Ag^+ and CI^- **ions**

B. NH_3 **molecules abstract chloride from** $AgCI$ **to form** NH_4CI

C. A soluble complex $Ag0(NH_3)_6^+$ **is formed**

D. A soluble complex $Ag(NH_3)_2^+$ is formed

Answer: D

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19. What is the final chemical form of Gold (Au) when it is dissolved in aqua regia?

A. Au

B. $AuCI$

C. $AuCI_2$

D. $[AuCI_4]^-$

Answer: D

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20. Identify the correct actinide series from the following

A. Nd, Np, No

B. Pr, Pa, Pu

C. Pa, Lr, Pu

D. Lu, Lr, Th

Answer: C

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21. Which of the following reaction leads to the formation of bezonitrile?

A. Reaction of bromobenzene with KCN

B. Reaction of aniline with $NaNO_2$ and HCI at 273 K followed by the reaction with $CuCN$

C. Reaction of bromobenzene with $NaNO_3$ and HCI at 273 K followed by the reaction.

D. Reaction of aniline with KCN

Answer: B

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