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# CBSE Board
# Class XI
# Chemistry
# Sample Paper 6

Q1. The first four ionization energies of an element are 191, 578,872 and 5962 kcal. The number of valence electrons in the element is
(A) 1
(B) 2
(C) 3
(D) 4

Sol. (c)

Q2. The radiation is emitted when a hydrogen atom goes from a high energy state to a lower energy state. The wavelength of one line in visible region of atomic spectrum of hydrogen is $6.5 \times 10^{-9}$ cm. Energy difference between the two states is
(A) $3.0 \times 10^{-17}$ J
(B) $1.0 \times 10^{-18}$ J
(C) $5.0 \times 10^{-10}$ J
(D) $6.5 \times 10^{-7}$ J

Sol. (C)

Q3. The ratio of the energy of the electron in ground state of hydrogen to the electron in first excited state of $Be^{3+}$ is
(A) 1 : 4
(B) 1 : 8
(C) 1 : 16
(D) 16 : 1

Sol. (D)

Q4. One mole of calcium phosphide on reaction with excess of water gives
(A) One mole of phosphine
(B) Two moles of phosphoric acid
(C) Two moles of phosphine
(D) One mole of phosphorus pentaoxide

Sol. (C)

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Q5. An aqueous solution of 6.3 gm oxalic acid dihydrate is made upto 250 ml. The volume of 0.1 N NaOH required to completely neutralise 10 ml of this solution is
(A) 40 ml
(B) 20 ml
(C) 10 ml
(D) 4 ml

Sol. (A)

Q6. Second and successive electron affinity of an element
(A) is always negative (energy is released)
(B) is always positive (energy is absorbed)
(C) can be positive or negative
(D) is always zero

Sol. (B)

Q7. Which of the elements show least values of ionization within their periods?
(A) Alkaline earth metals
(B) Alkali metals
(C) Noble gases
(D) Chalcogens

Sol. (B)

Q8. From the ground state electronic configurations of the elements given below, pick up the one with highest value of second ionization energies
(A) $1s^2, 2s^2, 2p^6, 3s^2$
(B) $1s^2, 2s^2, 2p^6, 3s^1$
(C) $1s^2, 2s^2, 2p^6$
(D) $1s^2, 2s^2, 2p^5$

Sol. (B)

Q9. A real gas most closely approaches the behaviour of an ideal gas at
(A) 15 atm and 200K
(B) 1 atm and 273K
(C) 0.5 atm and 500K
(D) 15 atm and 500K

Sol. (C)

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Q10. Which one of the following statements is true?
(A) The gas equation is not valid at high pressure and low temperature
(B) The product of pressure and volume of a fixed amount of gas is independent of temperature
(C) Molecules of different gases have the same kinetic energy at a give temperature
(D) The gas constant per molecule is called as Boltzmann's constant

Sol. (B)

Q11. Temperature of 1 mole of a gas is increased by 1° at constant pressure work done is
(A) R
(B) 2R
(C) R/2
(D) 3R

Sol. (A)

Q12. Which of the following thermodynamic quantities is an outcome of the second law of thermodynamics?
(A) enthalpy
(B) internal energy
(C) work
(D) entropy

Sol. (D)

Q13. Which of the following substances when added into a solution of acetic acid will not supress its degree of dissociation?
(A) dil HCl
(B) $CH_3OONa$
(C) water
(D) dil. $H_2SO_4$

Sol. (C)

Q14. What is the pH of solution which have 1 ml $NH_4OH$ (conc. 0.1M) 1 ml and $(NH_4)_2SO_4$ concentration 0.05M. Given that $K_b(NH_4OH) = 10^{-5}$
(A) 5
(B) 9
(C) 4.74
(D) 8.26

Sol. (B)

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Q15. Which of the following samples contains $2.0 \times 10^{23}$ atoms?
(A) 8.0 g $O_2$
(B) 3.0 g Be
(C) 8.0 g C
(D) 19.0 g $F_2$

Sol. (B)

Q16. Choose the wrong statement:-
(A) 1 Mole means $6.02 \times 10^{23}$ particles
(B) Molar mass is mass of one molecule
(C) Molar mass is mass of one mole of a substance
(D) Molar mass is molecular mass expressed in grams

Sol. (B)

Q17. $H_2$ reacts much faster with $Cl_2$ than $D_2$, because
(A) rate of diffusion of $H_2$ is greater than $D_2$
(B) $H_2$ has lower energy of activation than $D_2$
(C) both statements are correct
(D) none of the statements is correct

Sol. (B)

Q18. Which is true statement about $D_2O$ and $H_2O$?
(A) $D_2O$ has lower dielectric constant than $H_2O$
(B) NaCl is more soluble in $D_2O$ than in $H_2O$
(C) Both of the above are correct
(D) none of the above is correct

Sol. (A)

Q19. The number and type of bonds between two carbon atoms in $CaC_2$ are
(A) one sigma and one pi ($\pi$) bond
(B) one sigma and two pi ($\pi$) bonds
(C) one sigme and one a half pi ($\pi$) bonds
(D) one sigma bond

Sol. (B)

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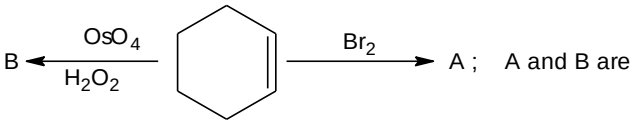
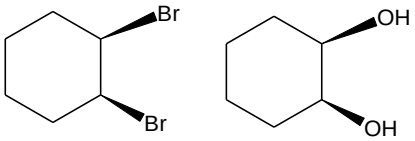
Q20. $HCH_3C{=}CHCH_3 \xrightarrow{X}$ Y (non - resolvable) then X can be

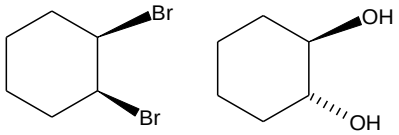
(A) $Br_2$ water
(B) $HCO_3H$
(C) $OSO_4/H_2O_2$
(D) none is correct

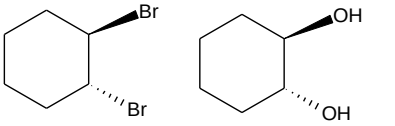
Sol. (C)

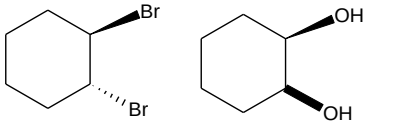
Q21. 

A and B are

(A) 


(B) 


(C) 


(D) 


Sol. (D)

Q22. Water pollution is less if BOD is
(A) less than 5 ppm
(B) less than 15 ppm
(C) less than 50 ppm
(D) less than 100 ppm

Sol. (A)

Q23. Which is responsible mainly for depletion of ozone layer?
(A) CFCS
(B) HCFs
(C) $CH_3Br$
(D) all are correct

Sol. (A)

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Q24. Which of these species are electrophiles?

(A) $FeCl_3$

(B) $BF_3$

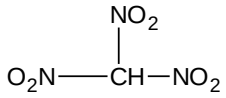
(C) $AlCl_3$

(D) all of these

Sol. (D)

Q25. Arrange given compounds in order of decreasing acicity

(1) $CH_3 — NO_2$ (2) $NO_2 — CH_2 — NO_2$ (3) $CH_3 — CH_2 — NO_2$

(4) 

(A) 4 > 2 > 1 > 3

(B) 4 > 2 > 3 > 1

(C) 3 > 1 > 2 > 4

(D) 3 > 1 > 4 > 2

Sol. (A)

Q26. The correct order of increasing C – O bond length of CO, $CO_3^{2-}$, $CO_2$ is

(A) $CO_3^{2-} < CO_2 < CO$

(B) $CO_2 < CO_3^{2-} < CO$

(C) $CO < CO_3^{2-} < CO_2$

(D) $CO < CO_2 < CO_3^{2-}$

Sol. (D)

Q27. On heating sodium metals in a current of dry ammonia, the compound formed is

(A) sodium amide

(B) sodium azide

(C) sodium nitride

(D) sodium hydride

Sol. (A)

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Q28. Anhydrous mixture of KF and HF contains which type of ions

(A) $K^+$, $H^+$, $F^-$

(B) $(KF^+)$ $(HF^-)$

(C) $KH^+$, $F^-$

(D) $K^+$, $HF_2^-$

Sol. (D)

Q29. Which of the interhalogen compound does not exist?

(A) $BrF_5$

(B) $ClF_3$

(C) $FCl_3$

(D) ClF

Sol. (C)

Q30. The percent loss in weight after heating a pure sample of potassium chlorate (Molecular weight = 122.5) will be

(A) 12.25

(B) 24.50

(C) 39.18

(D) 49

Sol. (C)