

**CBSE Board  
Class XI  
Chemistry  
Sample Paper 7**

- Q1. If the wavelength of first line of the Balmer series of hydrogen atom is 656.1 nm, the wavelength of second line of this series would be
- (a) 218.7 nm
  - (b) 328.0 nm
  - (c) 486.0 nm
  - (d) 640.0 nm

Sol. (c)

- Q2. In absence of external magnetic field f sub-shell is
- (a) 5 fold degenerate
  - (b) 3 fold degenerate
  - (c) 7 fold degenerate
  - (d) non-degenerate

Sol. (a)

- Q3. Which set of quantum numbers is not possible for electron in 3<sup>rd</sup> shell?
- (a)  $n = 3 \quad \ell = 2 \quad m = -1 \quad s = +1/2$
  - (b)  $n = 3 \quad \ell = 2 \quad m = -1 \quad s = -1/2$
  - (c)  $n = 3 \quad \ell = 2 \quad m = 0 \quad s = +1/2$
  - (d)  $n = 3 \quad \ell = 3 \quad m = 0 \quad s = -1/2$

Sol. (a)

- Q4. If 0.5 mol of  $\text{BaCl}_2$  is mixed with 0.2 mol of  $\text{Na}_3\text{PO}_4$ , the maximum number of moles of  $\text{Ba}_3(\text{PO}_4)_2$  that can be formed is
- (a) 0.7
  - (b) 0.5
  - (c) 0.30
  - (d) 0.10

Sol. (d)

Q5. The hydrated salt  $\text{Na}_2\text{SO}_4 \cdot x\text{H}_2\text{O}$  undergoes 55% loss in weight on heating and becomes anhydrous. The value of x will be

- (a) 5
- (b) 3
- (c) 7
- (d) 10

Sol. (d)

Q6. Which of the following process refers to  $IE_2$ ''

- (a)  $X(g) \rightarrow X^{2+}(g)$
- (b)  $X^+(g) \rightarrow X^{2+}(g)$
- (c)  $X^+(aq) \rightarrow X^{2+}(g)$
- (d)  $X(g) \rightarrow X^+(g)$

Sol. (b)

Q7. Which one of the following has the largest ionization energy?

- (a)  ${}_{11}\text{Na}$
- (b)  ${}_{19}\text{K}$
- (c)  ${}_{12}\text{Mg}$
- (d)  ${}_{37}\text{Rb}$

Sol. (c)

Q8. Which of the following statement concerning ionization energy is not correct?

- (a) The I.  $E_2$ . is always more than the first.

Sol. (b)

Q9. Two separate bulbs contain ideal gas A and B. The density of gas A is twice that of B. The molecular mass of A is half that of B. The two gases are at the same temperature. The ratio of pressure A to that of gas B is:

- (a) 2
- (b) 1/2
- (c) 4
- (d) 1/4

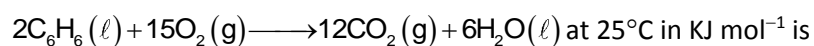
Sol. (c)

Q10. Use of hot air balloons in sports and metrological observations is an application of

- (a) Boyle's law
- (b) Kelvin's law
- (c) Charle's law
- (d) Brown's law

Sol. (c)

Q11. The difference between heats of reaction at constant pressure and constant volume for the reaction



- (a)  $-7.43 \text{ KJmol}^{-1}$
- (b)  $7.43 \text{ KJmol}^{-1}$
- (c)  $2.477 \text{ KJmol}^{-1}$
- (d)  $-2.477 \text{ KJmol}^{-1}$

Sol. (a)

Q12. For a reaction at equilibrium

- (a)  $\Delta G = \Delta G^0 \neq 0$
- (b)  $\Delta G^0 = 0$
- (c)  $\Delta G = \Delta G^0 = 0$
- (d)  $\Delta G = 0, \Delta G^0 \neq 0$

Sol. (d)

Q13. During salt analysis, the medium is made acidic in the precipitation of sulphides of group II due to

- (a) increase the  $\text{S}^{2-}$  ion concentration
- (b) decrease the  $\text{S}^{2-}$  ion concentration
- (c) to dilute the solution
- (d) to make solution viscous

Sol. (b)

Q14. Which of the following salts when dissolved in water will hydrolyse?

- (a) NaCl
- (b) KCl
- (c)  $\text{NH}_4\text{Cl}$
- (d)  $\text{Na}_2\text{SO}_4$

Sol. (c)

Q15. What quantity of limestone ( $\text{CaCO}_3$ ) on heating will give 56 Kg of CaO?

- (a) 1000 Kg
- (b) 44 Kg
- (c) 56 Kg
- (d) 100 Kg

Sol. (d)

Q16. Simplest formulae of a compound containing 50% of element X (atomic weight 10) and 50% of element Y (atomic weight 20) is

- (a) XY
- (b)  $\text{X}_2\text{Y}$
- (c)  $\text{XY}_3$
- (d)  $\text{X}_2\text{Y}_3$

Sol. (b)

Q17. In the following compounds H is covalent bonded in case of

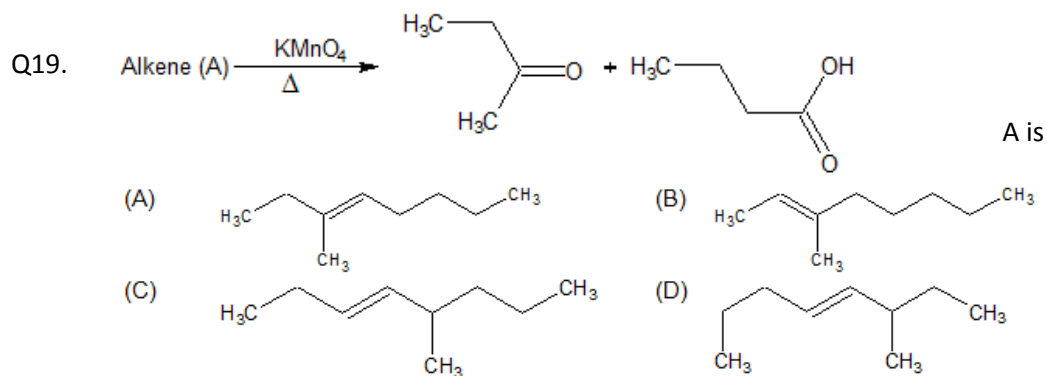
- (a)  $\text{BaH}_2$
- (b)  $\text{CaH}_2$
- (c)  $\text{SiH}_4$
- (d) NaH

Sol. (c)

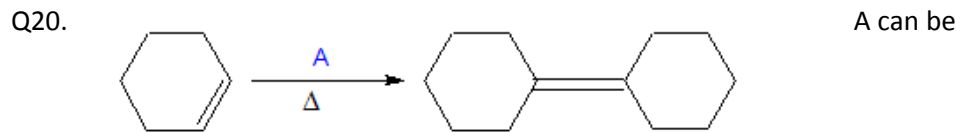
Q18. Select the correct statement:

- (a) Ammonia is more soluble in aqueous ammonium chloride than in pure water
- (b) Solid ammonium fluoride and ice are miscible in all proportions
- (c) both the statements are correct
- (d) none of the statements is correct

Sol. (c)



Sol. (A)



- (a) Conc.  $\text{H}_2\text{SO}_4$   
 (b) alcoholic KOH  
 (c)  $\text{Et}_3\text{N}$   
 (d) t - BuOK

Sol. (d)

Q21. Which are correct statements?

- (a) meso - 1, 2 - dibromobutane on reaction with NaI/acetone gives trans - 2 - butene  
 (b) d or l 2, 2 - dibromobutane on reaction with NaI/acetone gives cis - 2 - butene  
 (c) both statements are correct  
 (d) none of the statements is correct

Sol. (c)

Q22. The major air pollutant is

- (a) CO  
 (b) Oxides of nitrogen  
 (c) Oxides of sulphur  
 (d) all

Sol. (d)

Q23. The pollutant released in Bhopal gas tragedy was:

- (a) Ammonia
- (b) Methyl isocyanate
- (c) Mustard gas
- (d) Nitrous oxide

Sol. (b)

Q24. Which one of the following has the highest nucleophilicity?

- (a)  $F^-$
- (b)  $OH^-$
- (c)  $CH_3^-$
- (d)  $NH_2^-$

Sol. (c)

Q25. The stability of given free radical in decreasing order is

- (1)  $H_3C-\dot{C}H_2$             (2)  $H_3C-\dot{C}H-CH_3$     (3)  $H_3C-\underset{\substack{| \\ CH_3}}{\dot{C}}-CH_3$
- (4)  $\dot{C}H_3$

- (a)  $3 > 4 > 1 > 2$
- (b)  $1 > 2 > 3 > 4$
- (c)  $3 > 2 > 4 > 1$
- (d)  $3 > 2 > 1 > 4$

Sol. (d)

Q26. In the borax bead test of  $CO^{2+}$ , the blue colour of bead is due to the formation of

- (a)  $B_2O_3$
- (b)  $Co_3B_2$
- (c)  $Co(BO_2)_2$
- (d)  $CoO$

Sol. (c)

Q27. When  $K_2O$  is added to water, the solution is basic because it contains a significant concentration of

- (a)  $O_2^{2-}$
- (b)  $O^{3-}$
- (c)  $OH^-$
- (d)  $K^+$

Sol. (c)

Q28. Borax structure contains

- (a) two  $BO_4$  groups and two  $BO_3$  groups
- (b) four  $BO_4$  groups only
- (c) four  $BO_3$  groups only
- (d) three  $BO_4$  and one  $BO_3$  groups

Sol. (b)

Q29. The hybridisation of boron in orthoboric acid is

- (a)  $sp^3$
- (b)  $sp^2$
- (c)  $sp$
- (d)  $sp^3d$

Sol. (b)

Q30. The basic character of hydrides of the VB group elements decreases in the order

- (a)  $NH_3 > PH_3 > AsH_3 > SbH_3$
- (b)  $SbH_3 > PH_3 > AsH_3 > NH_3$
- (c)  $NH_3 > SbH_3 > PH_3 > AsH_3$
- (d)  $SbH_3 > AsH_3 > PH_3 > NH_3$

Sol. (a)