Padasalai’s Telegram Groups!

(தொடர்புத்தொடர் எணில் கல்வி விளக்க சீர்தேர்த்து வருகை நபரென் திட்டமும்!)

- Padasalai's NEWS - Group
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UNIT- 8  IONIC EQUILIBRIUM

1. Concentration of the Ag⁺ ions in a saturated solution of Ag₂C₂O₄ is 2.24 x 10⁻⁴ mol L⁻¹ solubility product of Ag₂C₂O₄ is
   a) 2.42 x10⁻⁸ mol³ L⁻³  b) 2.66 x10⁻² mol³ L⁻³  
   c) 4.5 x10⁻¹ mol³ L⁻³  d) 5.619 x 10⁻¹² mol³ L⁻³

2. Following solutions were prepared by mixing different volumes of NAOH of HCL different concentrations. (NEET – 2018)
   i) 60 mL \( \frac{M}{10} \) HCl + 40mL \( \frac{M}{10} \) NaOH
   ii) 55 mL \( \frac{M}{10} \) HCl + 45 mL \( \frac{M}{10} \) NaOH
   iii) 75 mL \( \frac{M}{5} \) HCl + 25mL \( \frac{M}{5} \) NaOH
   iv) 100 mL \( \frac{M}{10} \) HCl + 100 mL \( \frac{M}{10} \) NaOH
   pH of which one of them will be equal to 1?
   a) iv  b) i  c) ii  d) iii

3. The solubility of BaSO₄ in water is 2.42 x10⁻³ g L⁻¹ at 298K. The value of its solubility product (Ksp ) will be (NEET -2018). (Given molar mass of BaSO₄ =233g mol⁻¹)
   a) 1.08 x10⁻¹⁴ mol² L⁻²  b) 1.08 x10⁻¹² mol² L⁻²  
   c) 1.08 x10⁻¹⁰ mol² L⁻²  d) 1.08 x10⁻⁸ mol² L⁻²

4. pH of a saturated solution of Ca(OH)₂ is 9. The Solubility product (Kₚₛ) of Ca(OH)₂
   a) 0.5 x10⁻¹⁵  b) 0.25 x10⁻¹⁰  c) 0.125 x10⁻¹⁵  d) 0.5 x10⁻¹⁰

5. Conjugate base for bronsted acids H₂O and HF are
   a) OH⁻ and H₂FH⁺, respectively  b) H₃O⁺ and F⁻, respectively
   c) OH⁻ and F⁻, respectively  d) H₃O⁺ and HF, respectively

6. Which will make basic buffer?
   a) 50 mL of 0.1M NaOH+25mL of 0.1M CH₃ COOH 
   b) 100 mL of 0.1M CH₃COOH+100 mL of 0.1M NH₄ OH 
   c) 100 mL of 0.1M HCl+200 mL of 0.1M NH₄OH 
   d) 100 mL of 0.1M HCl+100 mL of 0.1M Na₄ OH

7. Which of the following fluro – compounds is most likely to behave as a Lewis base? 
   NEET – 2016
   a) BF₃  b) PF₃  c) CF₄  d) SiF₄

8. Which of these is not likely to act as lewis base?
   a) BF₃  b) PF₃  c) CO  d) F⁻
9. What is the decreasing order of strength of bases?
OH\(^{-}\), NH\(_2\)\(^{-}\), H - C \(\equiv\) C\(^{-}\) and CH\(_3\) - CH

- a) OH\(^{-}\) > NH\(_2\)\(^{-}\) > H - C \(\equiv\) C \(\equiv\) H - C
- b) NH\(_2\)\(^{-}\) > OH\(^{-}\) > H - C \(\equiv\) C - CH
- c) CH\(_3\) - CH\(_2\) > NH\(_2\)\(^{-}\) > H - C \(\equiv\) C
- d) OH\(^{-}\) > H - C \(\equiv\) C \(\equiv\) H - C

10. The aqueous solutions of sodium formate, anilinium chloride and potassium cyanide are respectively
   a) acidic, acidic, basic
   b) basic, acidic, basic
   c) basic, neutral, basic
   d) none of these

11. The percentage of pyridine (C\(_5\)H\(_5\)N) that forms pyridinium ion (C\(_5\)H\(_5\)N\(^+\)) in a 0.10M aqueous pyridine solution \((K_b \text{ for C}_5\text{H}_5\text{N} = 1.7 \times 10^{-9})\) is
   a) 0.006%
   b) 0.013%
   c) 0.77%
   d) 1.6%

12. Equal volumes of three acid solutions of pH 1, 2 and 3 are mixed in a vessel. What will be the H\(^+\) ion concentration in the mixture?
   a) 3.7 \times 10^{-2}
   b) 10^{-6}
   c) 0.111
   d) none of these

13. The solubility of AgCl(s) with solubility product 1.6 \times 10^{-10} in 0.1M NaCl solution would be
   a) 1.26 \times 10^{-5} M
   b) 1.6 \times 10^{-9} M
   c) 1.6 \times 10^{-11} M
   d) Zero

14. If the solubility product of lead iodide is 3.2 \times 10^{-8}, its solubility will be
   a) 2 \times 10^{-3} M
   b) 4 \times 10^{-4} M
   c) 1.6 \times 10^{-5} M
   d) 1.8 \times 10^{-5} M

15. Using Gibb’s free energy change, \(\Delta G_0 = 57.34 \text{ kJ mol}^{-1}\), for the reaction,
   \[X_2Y_{(s)} \rightleftharpoons 2X^+ + Y^{2-} \text{(aq)},\]
calculate the solubility product of X Y 2 in water at 300 K \((R = 8.3 \text{ J K}^{-1} \text{ Mol}^{-1})\)
   a) 10^{-14}
   b) 10^{-22}
   c) 10^{-14}
   d) can’t be calculated from the given data

16. MY and NY\(_3\) are insoluble salts and have the same \(K_{sp}\) values of 6.2 \times 10^{-13} at room temperature. Which statement would be true with regard to MY and NY\(_3\)?
   a) The salts MY and NY\(_3\) are more soluble in 0.5M KY than in pure water
   b) The addition of the salt of KY to the suspension of MY and NY\(_3\) will have no effect on their solubility’s
   c) The molar solubilities of MY and NY\(_3\) in water are identical
   d) The molar solubility of MY in water is less than that of NY\(_3\)

17. What is the pH of the resulting solution when equal volumes of 0.1M NaOH and 0.01M HCl are mixed?
   a) 2.0
   b) 3
   c) 7.0
   d) 12.65
18. The dissociation constant of a weak acid is $1 \times 10^{-3}$. In order to prepare a buffer solution with a pH = 4, the [Acid] / [Salt] ratio should be
   a) 4:3  
   b) 3:4  
   c) 10:1  
   d) 1:1

19. The pH of 10-5M KOH solution will be
   a) 9  
   b) 5  
   c) 19  
   d) none of these

20. $H_2PO_4^-$ the conjugate base of
   a) $PO_4^{3-}$  
   b) $P_2O_5$  
   c) $H_3PO_4$  
   d) $HPO_4^{2-}$

21. Which of the following can act as lowery – Bronsted acid well as base?
   a) HCl  
   b) $SO_4^{2-}$  
   c) $HPO_4^{2-}$  
   d) Br

22. The pH of an aqueous solution is Zero. The solution is
   a) slightly acidic  
   b) strongly acidic  
   c) neutral  
   d) basic

23. The hydrogen ion concentration of a buffer solution consisting of a weak acid and its salts is given by
   a) $[H^+] = \frac{K_a[acid]}{[salt]}$  
   b) $[H^+] = K_a[salt]$  
   c) $[H^+] = K_a[acid]$  
   d) $[H^+] = \frac{K_a[salt]}{[acid]}$

24. Which of the following relation is correct for degree of hydrolysis of ammonium Acetate?
   a) $h = \sqrt{\frac{K_b}{c}}$  
   b) $h = \sqrt{\frac{K_a}{K_b}}$  
   c) $h = \sqrt{\frac{K_b}{K_a-K_b}}$  
   d) $\sqrt{\frac{K_a-K_b}{K_b}}$

25. Dissociation constant of NH$_4$OH is $1.8 \times 10^{-5}$ the hydrolysis constant of NH$_4$Cl would be
   a) $1.8 \times 10^{-19}$  
   b) $5.55 \times 10^{-10}$  
   c) $5.55 \times 10^{-5}$  
   d) $1.80 \times 10^{-5}$
I. Choose the correct answer:

1. The number of electrons that have a total charge of 9650 coulombs is
   a) $6.22 \times 10^{23}$  
   b) $6.022 \times 10^{24}$  
   c) $6.022 \times 10^{22}$  
   d) $6.022 \times 10^{-34}$

2. Consider the following half cell reactions
   \[ \text{Mn}^{2+} + 2e^- \rightarrow \text{Mn} \quad E^\circ = -1.18V \]
   \[ \text{Mn}^{2+} \rightarrow \text{Mn}^{3+} + e^- \quad E^\circ = -1.51V \]
   The $E^\circ$ for the reaction $3\text{Mn}^{2+} \rightarrow \text{Mn} + 2\text{Mn}^{3+}$, and the possibility of the forward reaction are respectively:
   a) 2.69V and spontaneous  
   b) -2.69 and non spontaneous  
   c) 0.33V and Spontaneous  
   d) 4.18V and non spontaneous

3. The button cell used is watches function as follows
   \[ \text{Zn (s) + Ag} \text{O (s) + H}_2\text{O (l)} \rightleftharpoons 2\text{Ag (s) + Zn}^{2+} \text{(aq) + 2OH} \text{(aq)} \]
   the half cell potentials are
   a) 0.84V  
   b) 1.34V  
   c) 1.10V  
   d) 0.42V

4. The molar conductivity of a 0.5 mol dm$^{-3}$ solution of AgNO$_3$ with electrolytic conductivity of $5.76 \times 10^{-3}$ S cm$^{-1}$ at 298 K is
   a) 2.88 S cm$^2$ mol$^{-1}$  
   b) 11.52 S cm$^2$ mol$^{-1}$  
   c) 0.086 S cm$^2$ mol$^{-1}$  
   d) 28.8 S cm$^2$ mol$^{-1}$

5. | Electrolyte | KCl | KNO$_3$ | HCl | NaOAC | NaCl |
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<td>$\Lambda^-$</td>
<td>149.9</td>
<td>145.0</td>
<td>426.2</td>
<td>91.0</td>
<td>126.5</td>
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   Calculate $\Lambda^-$ for HOAc using appropriate molar conductances of the electrolytes listed above at infinite dilution in water at 25$^\circ$C
   a) 517.2  
   b) 552.7  
   c) 390.7  
   d) 217.5

6. Faradays constant is defined as
   a) charge carried by 1 electron  
   b) charge carried by one mole of electrons  
   c) charge required to deposit one mole of substance  
   d) charge carried by $6.22 \times 10^{10}$ electrons.

7. How many faradays of electricity are required for the following reaction to occur
   \[ \text{MnO}_4^- \rightarrow \text{Mn}^{2+} \]
   a) 5F  
   b) 3F  
   c) 1F  
   d) 7F

8. A current strength of 3.86 A was passed through molten Calcium oxide for 41 minutes and 40 seconds. The mass of Calcium in grams deposited at the cathode is (atomic mass of Ca is 40g / mol and 1F = 96500C).
   a) 4  
   b) 2  
   c) 8  
   d) 6

9. During electrolysis of molten sodium chloride, the time required to produce 0.1mol of chlorine gas using a current of 3A is
   a) 55 minutes  
   b) 107.2 minutes  
   c) 220 minutes  
   d) 330 minutes
10. Which of the following electrolytic solution has the least specific conductance
   a) 2N b) 0.002N c) 0.02N d) 0.2N

11. While charging lead storage battery
   a) PbSO₄ on cathode is reduced to Pb b) PbSO₄ on anode is oxidised to PbO₂
      c) PbSO₄ on anode is reduced to Pb d) PbSO₄ on cathode is oxidised to Pb

12. Among the following cells
    I) Leclanche cell
    II) Nickel – Cadmium cell
    III) Lead storage battery
    IV) Mercury cell
    Primary cells are
    a) I and IV b) I and III c) III and IV d) II and III

13. Zinc can be coated on iron to produce galvanized iron but the reverse is not possible. It is because
    a) Zinc is lighter than iron
    b) Zinc has lower melting point than iron
    c) Zinc has lower negative electrode potential than iron
    d) Zinc has higher negative electrode potential than iron

14. Assertion : pure iron when heated in dry air is converted with a layer of rust
    Reason : Rust has the composition Fe₃O₄
    a) if both assertion and reason are true and reason is the correct explanation of assertion.
    b) if both assertion and reason are true but reason is not the correct explanation of assertion.
    c) assertion is true but reason is false
    d) both assertion and reason are false.

15. In H₂ – O₂ fuel cell the reaction occur at cathode is
    a) O₂(g) + 2H₂O(l) + 4e⁻ → 4OH⁻(aq)
    b) H⁺(aq) + OH⁻(aq) → H₂O(l)
    c) 2H₂(g) + O₂(g) → 2H₂O(g)
    d) H⁺ + e⁻ → ½ H₂

16. The equivalent conductance of M/36 solution of a weak monobasic acid is 6mho cm² and at infinite dilution is 400 mho cm². The dissociation constant of this acid is
    a) 1.25 × 10⁻⁶ b) 6.25 × 10⁻⁶ c) 1.25 × 10⁻⁴ d) 6.25 × 10⁻⁵

17. A conductivity cell has been calibrated with a 0.01M, 1:1 electrolytic solution (specific conductance (k =1.25 × 10⁻³ S cm⁻¹) in the cell and the measured resistance was 800Ω at 25°C . The cell constant is,
    a) 10⁻¹ c m⁻¹ b) 10¹ c m⁻¹ c) 1 c m⁻¹ d) 5.7 10⁻¹²

18. Conductivity of a saturated solution of a sparingly soluble salt AB (1:1 electrolyte) at 298K is 1.85 × 10⁻⁵ S m⁻¹. Solubility product of the salt AB at 298K (A°ₘ)AB = 14 x 10⁻³ S m² mol⁻¹
    a) 5.7 × 10⁻¹² b) 1.32 × 10⁻¹² c) 7.5 ×10⁻¹² d) 1.74 × 10⁻¹²
19. In the electrochemical cell: \( \text{Zn} \mid \text{ZnSO}_4 \,(0.01\text{M}) \parallel \text{CuSO}_4 \,(1.0\text{M}) \mid \text{Cu} \), the emf of this Daniel cell is \( E_1 \). When the concentration \( \text{ZnSO}_4 \) is changed to 1.0M and that \( \text{CuSO}_4 \) changed to 0.01M, the emf changes to \( E_2 \). From the followings, which one is the relationship between \( E_1 \) and \( E_2 \)?
   a) \( E_1 < E_2 \)    b) \( E_1 > E_2 \)    c) \( E_2 = 0 \uparrow E_1 \)    d) \( E_1 = E_2 \)

20. Consider the change in oxidation state of Bromine corresponding to different emf values as shown in the diagram below:

\[
\begin{align*}
\text{BrO}_4^- & \xrightarrow{1.82\text{V}} \text{BrO}_3^- \xrightarrow{1.5\text{V}} \text{HBrO} \xrightarrow{1.595\text{V}} \text{Br}_2 \xrightarrow{1.0652\text{V}} \text{Br}^- \\
\end{align*}
\]

Then the species undergoing disproportional is
   a) \( \text{Br}_2 \)    b) \( \text{BrO}_4^- \)    c) \( \text{BrO}_3^- \)    d) \( \text{HBrO} \)

21. For the cell reaction
   \[2\text{Fe}^{3+}(aq) + 2I^-(aq) \rightarrow 2\text{Fe}^{2+}(aq) + I_2(aq)\]
   \( E^{\circ}_{\text{cell}} = 0.24\text{V} \) at 298K. The standard Gibbs energy (\( \Delta G^\circ \)) of the cell reaction is
   a) \( -46.32 \text{ KJ mol}^{-1} \)    b) \( -23.16 \text{ KJ mol}^{-1} \)    c) \( 46.32 \text{ KJ mol}^{-1} \)    d) \( 23.16 \text{ KJ mol}^{-1} \)

22. A certain current liberated 0.504gm of hydrogen in 2 hours. How many grams of copper can be liberated by the same current flowing for the same time in a copper sulphate solution
   a) 31.75    b) 15.8    c) 7.5    d) 63.5

23. A gas \( X \) at 1 atm is bubble through a solution containing a mixture of 1MY\(^-\) and 1MZ\(^-\) at 25°C. If the reduction potential of \( Z > Y > X \), then
   a) \( Y \) will oxidize \( X \) and not \( Z \)    b) \( Y \) will oxidize \( Z \) and not \( X \)
   d) \( Y \) will oxidize both \( X \) and \( Z \)    d) \( Y \) will reduce both \( X \) and \( Z \)

24. Cell equation: \( A + 2B^- \rightarrow \text{A}^{2+} + 2B \);
   \( \text{A}^{2+} + 2e^- \rightarrow \text{AE}^\circ = +0.34\text{ V} \) and \( \log_{10} K = 15.6 \) at 300K for cell reactions find \( E^\circ \) for \( \text{B}^1 + e^- \rightarrow \text{B} \) (AIIMS – 2018)
   a) 0.80    b) 1.26    c) -0.54    d) -10.94
1. For a graph of \[ \log \frac{x}{m} \] plotted against \[ \log P \], the slope of the line and its y-axis intercept correspond to:
   a) \( \frac{1}{n}, k \)  
   b) \( \log \frac{1}{n}, k \)  
   c) \( \frac{1}{n}, \log k \)  
   d) \( \log \frac{1}{n}, \log k \)

2. Which of the following is incorrect for physisorption?
   a) reversible  
   b) increases with increase in temperature  
   c) low heat of adsorption  
   d) increases with increase in surface area

3. Which one of the following characteristics are associated with adsorption? (NEET)
   a) \( \Delta G \) and \( \Delta H \) are negative but \( \Delta S \) is positive  
   b) \( \Delta G \) and \( \Delta S \) are negative but \( \Delta H \) is positive  
   c) \( \Delta G \) is negative but \( \Delta H \) and \( \Delta S \) are positive  
   d) \( \Delta G, \Delta H \) and \( \Delta S \) all are negative.

4. Fog is colloidal solution of:
   a) solid in gas  
   b) gas in gas  
   c) liquid in gas  
   d) gas in liquid

5. Assertion: Coagulation power of Al\( \text{III} \) is more than Na\( \text{I} \).
   Reason: Greater the valency of the flocculating ion added, greater is its power to cause precipitation.
   a) if both assertion and reason are true and reason is the correct explanation of assertion.
   b) if both assertion and reason are true but reason is not the correct explanation of assertion.
   c) assertion is true but reason is false.
   d) both assertion and reason are false.

6. Statement:
   To stop bleeding from an injury, ferric chloride can be applied. Which comment about the statement is justified?
   a) It is not true, ferric chloride is a poison.
   b) It is true, Fe\( \text{III} \) ions coagulate blood which is a negatively charged sol.
   c) It is not true; ferric chloride is ionic and gets into the blood stream.
   d) It is true, coagulation takes place because of formation of negatively charged sol with Cl\(-\).

7. Hair cream is:
   a) gel  
   b) emulsion  
   c) solid sol  
   d) sol.
8. Which one of the following is correctly matched?

| a) Emulsion | - Smoke |
| b) Gel     | - butter |
| c) foam    | - Mist   |
| d) whipped cream | - sol |

9. The most effective electrolyte for the coagulation of \( \text{AS}_2 \text{S}_3 \text{Sol 2 3} \) is
   a) \( \text{NaCl} \)  
   b) \( \text{Ba(NO}_3\text{)}_2 \)  
   c) \( \text{K}[\text{Fe}_3(\text{CN}_6)] \)  
   d) 

10. Which one of the is not a surfactant?

   a) \( \text{CH}_3\left(-\text{CH}_2\right)_{15}\text{C}(-\text{CH}_3)\text{2CH}_2\text{Br} \)
   b) \( \text{CH}_3\left(-\text{CH}_2\right)_{15}\text{NH}_2 \)
   c) \( \text{CH}_3\left(-\text{CH}_2\right)_{16}\text{CH}_2\text{OSO}_2^-\text{Na}^+ \)
   d) \( \text{OHC}\left(-\text{CH}_2\right)_{14}\text{CH}_2\text{COO}^-\text{Na}^+ \)

11. The phenomenon observed when a beam of light is passed through a colloidal solution is
   a) Cataphoresis  
   b) Electrophoresis  
   c) Coagulation  
   d) Tyndall effect

12. In an electrical field, the particles of a colloidal system move towards cathode. The coagulation of the same sol is studied using \( \text{K}_2\text{SO}_4 \) (i), \( \text{Na}_3\text{PO}_4 \) (ii), \( \text{K}_4[\text{Fe(CN}_6)] \) (iii) and \( \text{NaCl} \) (iv) Their coagulating power should be
   a) II > I > IV > III  
   b) III > II > I > IV  
   c) I > II > III > IV  
   d) none of these

13. Collodion is a 4\% solution of which one of the following compounds in alcohol – ether mixture?
   a) Nitroglycerine  
   b) Cellulose acetate  
   c) Glycoldinitrate  
   d) Nitrocellulose

14. Which one of the following is an example for homogeneous catalysis?
   a) manufacture of ammonia by Haber’s process  
   b) manufacture of sulphuric acid by contact process  
   c) hydrogenation of oil  
   d) Hydrolysis of sucrose in presence of all HCl
15. Match the following

| A) $\text{V}_2\text{O}_5$ | i) High density polyethylene |
| B) Ziegler – Natta | ii) PAN |
| C) Peroxide | iii) $\text{NH}_3$ |
| D) Finely divided Fe | iv) $\text{H}_2\text{SO}_4$ |

A: (iv)  B: (i)  C: (ii)  D: (iii)

b) (i)  c) (iii)  d) (ii)  (iv) (i)

16. The coagulation values in millimoles per litre of the electrolytes used for the coagulation of $\text{AS}_2 \text{S}_3$ are given below

(I) $(\text{NaCl})=52$  
(II) $(\text{BaCl}_2)=0.69$  
(III) $(\text{MgSO}_4)=0.22$

The correct order of their coagulating power is:

a) III > II > I  
b) I > II > III  
c) I > III > II  
d) II > III > I

17. Adsorption of a gas on solid metal surface is spontaneous and exothermic, then

a) $\Delta H$ increases  
b) $\Delta S$ increases  
c) $\Delta G$ increases  
d) $\Delta S$ decreases

18. If $x$ is the amount of adsorbate and $m$ is the amount of adsorbent, which of the following relations is not related to adsorption process?

a) $x/m = f(P)$ at constant $T$  
b) $x/m = f(T)$ at constant $P$  
c) $P = f(T)$ at constant $x/m$  
d) $x/m = PT$

19. On which of the following properties does the coagulating power of an ion depend? (NEET – 2018)

a) Both magnitude and sign of the charge on the ion.  
b) Size of the ion alone  
c) the magnitude of the charge on the ion alone  
d) the sign of charge on the ion alone

20. Match the following

| A) Pure nitrogen | i) Chlorine |
| B) Haber process | ii) Sulphuric acid |
| C) Contact process | iii) Ammonia |
| D) Deacons Process | iv) sodium azide (or) Barium azide |

Which of the following is the correct option?

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I. Choose the correct answer:

1. An alcohol (x) gives blue colour in victormayer’s test and 3.7g of X when treated with metallic sodium liberates 560 mL of hydrogen at 273 K and 1 atm pressure what will be the possible structure of X?
   a) CH$_3$ CH (OH) CH$_2$CH$_3$
   b) CH$_3$ – CH (OH) – CH$_3$
   c) CH$_3$ – C (OH) – (CH$_3$)$_2$
   d) CH$_3$- CH$_2$ –CH (OH) – CH$_2$ – CH$_3$

2. Which of the following compounds on reaction with methyl magnesium bromide will give tertiary alcohol.
   a) benzaldehyde
   b) propanoic acid
   c) methyl propanoate
   d) acetaldehyde

3. \[ \text{CH}_3\text{CH} = \text{CH}_2 \to \begin{align*}
   &\text{BH}_3 \text{ THF} \\
   &\text{H}_2\text{O}_2 \text{ OH}^- \\
   &\text{X}
\end{align*} \]
   The X is
   a) \( \text{H}_3\text{C} - \text{CH} - \text{CH}_2\text{CH}_2\text{CH}_2\text{OH} \)
   b) \( \text{H}_3\text{C} - \text{CH} - \text{CH}_2\text{OH} \)
   c) \( \text{H}_3\text{C} - \text{CH} - \text{OH} \)
   d) None of these

4. In the reaction sequence, Ethane \( \text{HOCl} \to \begin{align*}
   &\text{A} \\
   &\text{X}
\end{align*} \)
   A and X respectively are
   a) Chloroethane and NaOH
   b) ethanol and H$_2$SO$_4$
   c) 2 – chloroethan -1-ol and NaHCO$_3$
   d) ethanol and H$_2$O

5. Which one of the following is the strongest acid
   a) 2 - nitrophenol
   b) 4 – chlorophenol
   c) 4 – nitrophenol
   d) 3 – nitrophenol

6. \[
   \text{H}_2\text{C} = \text{CH}_2 \to \begin{align*}
   &\text{H}_2\text{SO}_4 \text{ conc.}
\end{align*} \]
   on treatment with Conc. H$_2$SO$_4$, predominately gives
   a) \( \text{H}_3\text{C} - \text{CH} - \text{CH}_2\text{OH} \)
   b) \( \text{H}_3\text{C} - \text{CH} - \text{CH}_3 \)
   c) \( \text{H}_3\text{C} - \text{CH} - \text{CH}_3 \)
   d) \( \text{H}_3\text{C} - \text{CH} - \text{CH}_3 \)

7. Carbolic acid is
   a) Phenol
   b) Picri cacid
   c) benzoic acid
   d) phenylacetic acid
8. Which one of the following will react with phenol to give salicylaldehyde after hydrolysis.
   a) Dichlo methane  
   b) trichloroethane 
   c) trichloro methane  
   d) CO₂

9. \((CH₃)₃C - C - CH(OH)CH₃ \xrightarrow{Con\ H₂SO₄} X \) (major product)
   a) \((CH₃)₃C\ CH = \ CH_2\)  
   b) \((CH₃)₂\ C = C\ (CH₃)₂\) 
   c) \(CH_2 = C(CH₃)CH₂ - CH₂ - CH₃\)  
   d) \(CH₂ = C\ (CH₃) - CH₂ - CH₂ - CH₃\)

10. The correct IUPAC name of the compound,
    a) 4 – chloro – 2,3 – dimethyl pentan – 1-ol 
    b) 2,3 – dimethyl – 4- chloropentan -1-ol 
    c) 2,3,4 – trimethyl – 4- chlorobutan -1-ol 
    d) 4 – chloro – 2,3,4 – trimethyl pentan – 1-ol 

11. Assertion : Phenol is more acidic than ethanol 
    Reason: Phenoxide ion is resonance stabilized 
    a) if both assertion and reason are true and reason is the correct explanation of assertion. 
    b) if both assertion and reason are true but reason is not the correct explanation of assertion. 
    c) assertion is true but reason is false 
    d) both assertion and reason are false.

12. In the reaction Ethanol \(\xrightarrow{\text{PCl}_5/\text{alcohol KOH}} X \xrightarrow{\text{H}_2\text{SO}_4/\text{H}_2\text{O}} Y \xrightarrow{298K} Z\) The ‘Z’ is
    a) ethane  
    b) ethoxyethane  
    c) ethylbisulphite  
    d) ethanol

13. The reaction

Can be classified as
    a) dehydration  
    b) Williams on alcohol synthesis 
    c) Williamson ether synthesis  
    d) dehydrogenation of alcohol

14. Isoprophylbenzene on air oxidation in the presence of dilute acid gives
    a) \(C₆H₅\ COOH\)  
    b) \(C₆H₅ COCH₃\) 
    c) \(C₆H₅ COC₆H₅\)  
    d) \(C₆H₅ - OH\)
15. Assertion: Phenol is more reactive than benzene towards electrophilic substitution reaction.

Reason: In the case of phenol, the intermediate arenium ion is more stabilized by resonance.

a) if both assertion and reason are true and reason is the correct explanation of assertion.
b) if both assertion and reason are true but reason is not the correct explanation of assertion.
c) assertion is true but reason is false

d) both assertion and reason are false.

16. HO CH2 CH2 – OH on heating with periodic acid gives
   a) methanoic acid  b) Glyoxal  c) methanol  d) CO₂

17. Which of the following compounds can be used as antifreeze in automobile radiators?
   a) methanol  b) ethanol  c) Neopentyl alcohol  d) ethanol -1, 2-diol

18. The reactions

   ![Reaction Diagram]

   is an example of

   a) Wurtz reaction  b) cyclic reaction
   c) Williamson reaction  d) Kolbe reactions

19. One mole of an organic compound (A) with the formula C₈H₁₀O₃ reacts completely with two moles of HI to form X and Y. When Y is boiled with aqueous alkali it forms Z. Z answers the iodoform test. The compound (A) is
   a) propan – 2 ol  b) propan -1 ol  c) ethoxy ethane  d) methoxy ethane

20. Among the following ethers which one will produce methyl alcohol on treatment with hot HI?
   a) (CH₃)₂C=O–CH₃  b) (CH₃₂CH₂–O–CH₃
   c) CH₃(CH₂)₂O–CH₃  d) CH₃–CH₂ – CH₂–O–CH₃

21. Williamson synthesis of preparing dimethyl ether is a / an /
   a) SN1 reactions  b) SN2 reaction
c) electrophilic addition  d) electrophilic substitution

22. On reacting with neutral ferric chloride, phenol gives
   a) red colour  b) violet colour  c) dark green colour  d) no colouration
UNIT 12-Carbonyl Compounds

1. The correct structure of the product ‘A’ formed in the reaction

\[
\text{H}_2 \text{(gas. 1 atm)} \xrightarrow{\text{Pd/C, ethanol}} \text{OH}
\]

\[\begin{align*}
a) \quad & \text{(cyclohexene)} \\
b) \quad & \text{(cyclohexanone)} \\
c) \quad & \text{(cyclohexanol)} \\
d) \quad & \text{(cyclohexanediol)}
\end{align*}\]

2. The formation of cyanohydrin from acetone is an example of

a) nucleophilic substitution  
  b) electrophilic substitution  
  c) electrophilic addition  
  d) nucleophilic addition

3. Reaction of acetone with one of the following reagents involves nucleophilic addition followed by elimination of water. The reagent is

a) Grignard reagent  
  b) Sn/HCl  
  c) hydrazine in presence of slightly acidic solution  
  d) hydrocyanic acid

4. In the following reaction,

\[
\text{HC≡CH} \xrightarrow{\text{H}_2\text{SO}_4} \text{HgSO}_4 \xrightarrow{i) \text{O}_3} \text{NH}_3 \xrightarrow{\text{ii) Zn/H}_2\text{O}} X \quad \text{Product ‘X’ will give}
\]

a) Tollen’s test  
  b) Victor Meyer test  
  c) Iodoform test  
  d) Fehling solution test

5. \[
\text{CH}_2=\text{CH}_2 \xrightarrow{i) \text{O}_3} \xrightarrow{\text{ii) Zn/H}_2\text{O}} \text{X} \xrightarrow{\text{NH}_3} \text{Y ‘Y’ is}
\]

a) Formaldehyde  
  b) Diacetoneammonia  
  c) Hexamethylenetetraamine  
  d) Oxime

6. Predict the product Z in the following series of reactions

\[
\text{Ethanoic acid} \xrightarrow{\text{PCl}_5} \xrightarrow{\text{C}_6\text{H}_5} \xrightarrow{\text{Anhydrous AlCl}_3} \xrightarrow{\text{i) CH}_3\text{MgBr}} \xrightarrow{\text{ii) H}_2\text{O}} Z.
\]

\[\begin{align*}
a) \quad & (\text{CH}_3)_2 \text{C(OH)C}_6\text{H}_5 \\
b) \quad & \text{CH}_3\text{CH(OH)C}_6\text{H}_5 \\
c) \quad & \text{CH}_3\text{CH(OH)CH}_2 – \text{CH}_3 \\
d) \quad & \text{ }
\end{align*}\]

7. Assertion: 2,2 – dimethyl propanoic acid does not give HVZ reaction.
Reason: 2 – 2, dimethyl propanoic acid does not have — hydrogen atom

a) if both assertion and reason are true and reason is the correct explanation of assertion.

b) if both assertion and reason are true but reason is not the correct explanation of assertion.
c) assertion is true but reason is false
d) both assertion and reason are false.

8. Which of the following represents the correct order of acidity in the given compounds
   a) FCH COOH > CH COOH > BrCH COOH > ClCH COOH
   b) FCH COOH > ClCH COOH > BrCH COOH > CH COOH
   c) CH COOH > ClCH COOH > FCH COOH > Br-CH COOH
   d) Cl CH COOH > CH COOH > BrCH COOH > ICH COOH

   Benzoic acid $\xrightarrow{\text{i) NH}_3$ \text{NaOBr} \xrightarrow{\text{ii) } \Delta}$ A $\xrightarrow{\text{NaNO}_2/\text{HCl}}$ B ‘C’ is
   a) anilinium chloride
   b) O – nitro aniline
   c) benzene diazonium chloride
   d) m – nitro benzoic acid

9. Ethanoic acid $\xrightarrow{p/\text{Br}_2}$ 2 – bromoethanoic acid. This reaction is called
   a) Finkelstein reaction
   b) Haloform reaction
   c) Hell – Volhard – Zelinsky reaction
   d) none of these

10. CH$_3$Br $\xrightarrow{\text{KCN}}$ A $\xrightarrow{\text{H}_2\text{O}^+}$ B $\xrightarrow{\text{PCl}_5}$ (C) product (c) is
    a) acetylchlide
    b) chloro acetic acid
    c) α- chlorocyano ethanoic acid
    d) none of these

11. Which one of the following reduces tollens reagent
    a) formic acid
    b) acetic acid
    c) benzophenone
    d) none of these

12. 
   \[ \text{Br} \xrightarrow{\text{i) Mg, ether}} \xrightarrow{\text{ii) CO}_2} \text{A} \xrightarrow{\text{H}_3\text{O}^+} \text{B} \]
   a) \[ \text{COOH} \]
   b) \[ \text{COOH} \]
   c) \[ \text{COOH} \]
   d) \[ \text{COOH} \]

13. The IUPAC name of
    a) but – 3- enoicacid
    b) but – 1- ene-4-oicacid
    c) but – 2- ene-1-oic acid
    d) but -3-ene-1-oicacid
14. Identify the product formed in the reaction

\[ \text{C}_6\text{H}_5\text{CH}_3 + \text{N}_2\text{H}_4 \rightarrow \text{C}_6\text{H}_5\text{CH}_3\text{CH}_2\text{ONa} \]

\[ \text{C}_6\text{H}_5\text{CH}_3\text{CH}_2\text{ONa} + \text{C}_2\text{H}_5\text{ONa} \]

\[ \text{C}_6\text{H}_5\text{CH}_3\text{CH}_2\text{ONa} \]

(a) \[ \text{C}_6\text{H}_5\text{CH}_3 \]
(b) \[ \text{C}_6\text{H}_5\text{CH}_2\text{CH}_2\text{NH}_2 \]
(c) \[ \text{C}_6\text{H}_5\text{CH}_3\text{CH}_2\text{ONa} \]
(d) \[ \text{C}_6\text{H}_5\text{CH}_3\text{CH}_2\text{OH} \]

15. In which case chiral carbon is not generated by reaction with HCN

(a) \[ \text{C}_6\text{H}_5\text{CH}_3\text{CH}_2\text{ONa} \]
(b) \[ \text{C}_6\text{H}_5\text{CH}_3\text{CH}_2\text{OH} \]
(c) \[ \text{C}_6\text{H}_5\text{CH}_3\text{CH}_2\text{ONa} \]
(d) \[ \text{C}_6\text{H}_5\text{CH}_3\text{CH}_2\text{OH} \]

16. Assertion: \( p - \text{N}, \text{N} - \text{dimethyl aminobenzaldehyde undergoes benzoin condensation} \)
Reason: The aldehydic (-CHO) group is meta directing

(a) if both assertion and reason are true and reason is the correct explanation of assertion.
(b) if both assertion and reason are true but reason is not the correct explanation of assertion.
(c) assertion is true but reason is false
(d) both assertion and reason are false.

17. Which one of the following reaction is an example of disproportionation reaction

(a) Aldol condensation  
(b) cannizaro reaction  
(c) Benzoin condensation  
(d) none of these

18. Which one of the following undergoes reaction with 50% sodium hydroxide solution to give the corresponding alcohol and acid

(a) Phenylmethanal  
(b) ethanal  
(c) ethanol  
(d) methanol
19. The reagent used to distinguish between acetaldehyde and benzaldehyde is
   a) Tollens reagent          b) Fehling’s solution
   c) 2,4 – dinitrophenyl hydrazine  d) semicarbazide

20. Phenyl methanal is reacted with concentrated NaOH to give two products X and Y. X reacts with metallic sodium to liberate hydrogen X and Y are
   a) sodium benzoate and phenol                 b) Sodium benzoate and phenyl methanol
   c) phenyl methanol and sodium benzoate       d) none of these

21. In which of the following reactions new carbon – carbon bond is not formed?
   a) Aldol condensation          b) Friedel craft reaction
   c) Kolbe’s reaction            d) Wolf kishner reduction

22. An alkene “A” on reaction with O₃ and Zn – H₂O gives propanone and ethanol in equimolar ratio. Addition of HCl to alkene “A” gives “B” as the major product. The structure of product “B” is

   a) Cl–CH₂–CH₂–CH
       CH₃
       CH₃
   b) H₃C–CH₂–CH–CH₃
   c) H₃C–CH₂–C–CH₃
       Cl
   d) H₃C–CH–CH
       Cl

23. Carboxylic acids have higher boiling points than aldehydes, ketones and even alcohols of comparable molecular mass. It is due to their (NEET)
   a) more extensive association of carboxylic acid via van der Waals force of attraction
   b) formation of carboxylate ion
   c) formation of intramolecular H-bonding
   d) formation of intermolecular H – bonding

24. Of the following, which is the product formed when cyclohexanone undergoes aldol condensation followed by heating?
Unit 13 – Organic Nitrogen Compounds

I. Choose the correct answer:

1. Which of the following reagent can be used to convert nitrobenzene to aniline
   a) Sn / HCl   b) ZnHg / NaOH   c) LiAlH₄   d) All of these

2. The method by which aniline cannot be prepared is
   a) degradation of benzamide with Br₂ / NaOH
   b) potassium salt of phthalimide treated with chlorobenzene followed by hydrolysis with aqueous NaOH solution.
   c) Hydrolysis of phenyl cyanide with acidic solution.
   d) reduction of nitrobenzene by Sn / HCl.

3. Which one of the following will not undergo Hofmann bromamide reaction?
   a) CH₃ CONHCH₃   b) CH₃ CH₂ CONH₂
   c) CH₃ CONH₂   d) C₆ H₅ CONH₂

4. Assertion : Acetamide on reaction with KOH and bromine gives acetic acid
   Reason : Bromine catalyses hydrolysis of acetamide.
   a) if both assertion and reason are true and reason is the correct explanation of assertion.
   b) if both assertion and reason are true but reason is not the correct explanation of assertion.
   c) assertion is true but reason is false.
   d) both assertion and reason are false.

5. CH₃ CH₂ Br $\xrightarrow{\Delta \text{aq } \text{NaOH}}$ A $\xrightarrow{\Delta \text{KMnO}_4/\text{H}^+}$ B $\xrightarrow{\Delta}$ C $\xrightarrow{\text{B₅/NaOH}}$ D ‘D’ is
   a) bromomethane   b) CH₃ CH₂ CONH₂   c) methanamine   d) acetamide

6. Which one of the following nitro compounds does not react with nitrous
   a) CH₃ –CH₂ –CH₂ –NO₂   b) (CH₃)₂ CH – CH₂ NO₂
   c) (CH₃)₃ C NO₂   d) CH₃ –C –CH – CH –NO₂

7. Aniline + benzyol chloride $\xrightarrow{\text{NaOH}}$ C₆ H₅ - NH – COC₆ H₅ this reaction is known as
   a) Friedel – crafts reaction   b) HVZ reaction
   c) Schotten – Baumann reaction   d) none of these

8. The product formed by the reaction an aldehyde with a primary amine
   a) carboxylic acid   b) aromatic acid
   c) schiff ’s base   d) ketone
9. Which of the following reaction is not correct.

\[ \text{CH}_3\text{CH}_2\text{NH}_2 + \text{HNO}_3 \rightarrow \text{CH}_3\text{CH}_2\text{OH} + \text{N}_2 \]

\[ (\text{CH}_3)_2\text{N} + \text{NaNO}_2 / \text{HCl} \rightarrow (\text{CH}_3)_2\text{N} - \text{N} = \text{NCl} \]

\[ \text{CH}_3\text{CONH}_2 + \text{Br}_2 / \text{NaOH} \rightarrow \text{CH}_3\text{NH}_2 \]

d) none of these

10. When aniline reacts with acetic anhydride the product formed is

a) o – aminoacetophenone
b) m-aminoacetophenone
c) p – aminoacetophenone
d) acetanilide

11. The order of basic strength for methyl substituted amines in aqueous solution is

a) N(CH₃)₃ > N(CH₃)₂H > N(CH₃)H₂ > NH₃
b) N(CH₃)H₂ > N(CH₃)₂H > N(CH₃)₃ > NH₃
c) NH₃ > N(CH₃)H₂ > N(CH₃)₂H > N(CH₃)₃
d) N(CH₃)₂H > N(CH₃)H₂ > N(CH₃)₃ > NH₃

12.

\[ \text{NO}_2 \]

\[ \text{Cl} \]

\[ \text{Br} \]

\[ \text{N} = \text{N} - \text{Cl} \]

13. C₆H₅NO₂

\[ \text{H}_3\text{PO}_2 \text{ and H}_2\text{O} \]

\[ \text{H}^+ / \text{H}_2\text{O} \]

\[ \text{HgSO}_4 / \text{H}_2\text{SO}_4 \]

d) Cu₂Cl₂

14. Nitrobenzene on reaction with at 80-100°C forms which one of the following products?

a) 1,4 – dinitrobenzene
b) 2,4,6 – trinitrobenzene
c) 1,2 – dinitrobenzene
d) 1,3 – dinitrobenzene

15. C₅H₁₃N reacts with HNO₂ to give an optically active compound – The compound is

a) pentan – 1-amine
b) pentan – 2-amine
c) N,N – dimethylpropan -2-amine
d) N – methylbutan – 2-amine

16. Secondary nitro alkanes react with nitrous acid to form

a) red solution
b) blue solution
c) green solution
d) yellow solution

17. Which of the following amines does not undergo acetylation?

a) t – butylamine
b) ethylamine
c) diethylamine
d) triethylamine

18. Which one of the following is most basic?

a) 2,4 – dichloroaniline
b) 2,4 – dimethyl aniline
c) 2,4 – dinitroaniline
d) 2,4 – dibromoaniline
19. When \( \text{O} = \text{N} \) is reduced with Sn / HCl the pair of compounds formed are
   a) Ethanol, hydroxylamine hydrochloride       b) Ethanol, ammonium hydroxide
   c) Ethanol, \( \text{NH}_2 \text{OH} \)                   d) \( \text{C}_3 \text{H}_5 \text{NH}_2, \text{H}_2 \text{O} \)

20. IUPAC name for the amine
   \[
   \begin{align*}
   \text{CH}_3 & \quad \text{N} \quad \text{C} \quad \text{CH}_2 \quad \text{CH}_3 \\
   \end{align*}
   \]
   a) \( \text{CH}_3 \text{NCH}_3 \text{CH}(\text{CH}_3) \text{CH}_3 \)
   b) \( \text{CH}_3 \text{CC}_2\text{H}_5 \)
   c) \( 3-\text{N,N,N-Trimethyl pentanamine} \)
   d) \( 3-\text{(N,N-Dimethyl amino)}-3\text{-methyl pentane} \)

21. \[
\begin{align*}
\text{C} & \equiv \text{N} \\
+ \text{CH}_3\text{MgBr} & \xrightarrow{\text{H}_3\text{O}^+} \text{P}
\end{align*}
\]
   Product ‘P’ in the above reaction is
   a) \( \text{OH} \text{C} \text{CH} \text{CH}_3 \)
   b) \( \text{O} \text{C} \text{CH} \text{CH}_3 \)
   c) \( \text{CHO} \text{C} \text{CH}_3 \text{OCH}_3 \)
   d) \( \text{COOH} \text{OCH}_3 \)

22. Ammonium salt of benzoic acid is heated strongly with \( \text{NaNO}_2 / \text{HCl} \) at low temperature. The final compound formed is
   a) Benzene diazonium chloride       b) Benzyl alcohol
   c) Phenol                           d) Nitrosobenzene

23. Identify X in the sequence give below.
   \[
\begin{align*}
\text{NH}_2 & \xrightarrow{\text{CHCl}_3 / \text{KOH}} (Y) \xrightarrow{\text{HCl} (300 \text{K})} \times + \text{methanoic acid}
\end{align*}
\]
   a) \( \text{H}_2\text{N-} \text{C} \equiv \text{N-} \text{Cl} \)
   b) \( \text{C} \equiv \text{N-} \text{Cl} \)
24. Among the following, the reaction that proceeds through an electrophilic substitution, is:

\[
\begin{align*}
&\text{a)} \quad \text{Ph}^+\text{N}_2\text{Cl} + \text{CuCl}_2 \rightarrow \text{PhCl} + \text{N}_2 \\
&\text{b)} \quad \text{Ph} - \text{Cl}_2 + \text{AlCl}_3 \rightarrow \text{PhCl} + \text{HCl} \\
&\text{c)} \quad \text{Ph} - \text{Cl}_2 \rightarrow \text{UV light} \rightarrow \text{Ph}_4\text{Cl}_4 \\
&\text{d)} \quad \text{Ph} - \text{CH}_2\text{OH} + \text{HCl} \rightarrow \text{heat} \rightarrow \text{PhCH}_2\text{Cl} + \text{H}_2\text{O}
\end{align*}
\]

25. The major product of the following reaction:

\[
\text{PhCOOH} + \text{NH}_3 \rightarrow \text{strong heating} \rightarrow \text{PhCONH}_2
\]
Unit 14 - Biomolecules

I. Choose the correct answer:
1. Which one of the following rotates the plane polarized light towards left? (NEET Phase – II)
   a) D(+) Glucose  b) L(+) Glucose  c) D(-) Fructose  d) D(+) Galactose
2. The correct corresponding order of names of four aldoses with configuration given below respectively is, (NEET Phase – I) 1551
   a) L-Erythrose, L-Threose, L-Erythrose, D-Threose
   b) D-Threose, D-Erythrose, L-Threose, L-Erythrose
   c) L-Erythrose, L-Threose, D-Erythrose, D-Threose
   d) D-Erythrose, D-Threose, L-Erythrose, L-Threose
3. Which one given below is a non-reducing sugar? (NEET Phase – I)
   a) Glucose  b) Sucrose  c) maltose  d) Lactose.
4. Glucose(HCN) Product (hydrolysis) Product (HI + Heat) A, the compound A is
   a) Heptanoic acid  b) 2-Iodohexane  c) Heptane  d) Heptanol
5. Assertion: A solution of sucrose in water is dextrorotatory. But on hydrolysis in the presence of little hydrochloric acid, it becomes levorotatory. (AIIMS)
   Reason: Sucrose hydrolysis gives unequal amounts of glucose and fructose. As a result of this change in sign of rotation is observed.
   a) If both accretion and reason are true and reason is the correct explanation of assertion
   b) If both assertion and reason are true but reason is not the correct explanation of assertion
   c) If assertion is true but reason is false.
   d) If both assertion and reason are false.
6. The central dogma of molecular genetics states that the genetic information flows from (NEET Phase – II)
   a) Amino acids Protein DNA
   b) DNA Carbohydrates Proteins
   c) DNA RNA Proteins
   d) DNA RNA Carbohydrates
7. In a protein, various amino acids linked together by (NEET Phase – I)
   a) Peptide bond  b) Dative bond  c) α - Glycosidic bond  d) β - Glycosidic bond
8. Among the following the achiral amino acid is (AIIMS)
   a) 2-ethylalanine  b) 2-methylglycine
   c) 2-hydroxymethylserine  d) Tryptophan
9. The correct statement regarding RNA and DNA respectively is (NEET Phase – I)
   a) the sugar component in RNA is an arabinos and the sugar component in DNA is ribose
b) the sugar component in RNA is 2’-deoxyribose and the sugar component in DNA is arabinose

c) the sugar component in RNA is an arabinose and the sugar component in DNA is 2’-deoxyribose
d) the sugar component in RNA is ribose and the sugar component in DNA is 2’-deoxyribose

10. In aqueous solution of amino acids mostly exists in,
   a) NH₂-CH(R)-COOH          b) NH₂-CH(R)-COO⁻
   c) H₃N⁺-CH(R)-COOH          d) H₃N⁺-CH(R)-COO⁻

11. Which one of the following is not produced by body?
   a) DNA                    b) Enzymes              c) Hormones           d) Vitamins

12. The number of sp² and sp³ hybridised carbon in fructose are respectively
   a) 1 and 4                  b) 4 and 2               c) 5 and 1             d) 1 and 5

13. Vitamin B2 is also known as
   a) Riboflavin              b) Thiamine            c) Nicotinamide        d) Pyridoxine

14. The pyrimidine bases present in DNA are
   a) Cytosine and Adenine    b) Cytosine and Guanine
   c) Cytosine and Thiamine   d) Cytosine and Uracil

15. Among the following L-serine is The secondary structure of a protein refers to
   a) fixed configuration of the polypeptide backbone
   b) hydrophobic interaction
   c) sequence of α-amino acids
   d) α-helical backbone.

16. Which of the following vitamins is water soluble?
   a) Vitamin E               b) Vitamin K          c) Vitamin A          d) Vitamin B

17. Complete hydrolysis of cellulose gives
   a) L-Glucose                b) D-Fructose           c) D-Ribose            d) D-Glucose

18. Which of the following statement is correct?
   a) Ovalbumin is a simple food reserve in egg-white
   b) Blood proteins thrombin and fibrinogen are involved in blood clotting
   c) Denaturation makes protein more active
   d) Insulin maintains the sugar level of in the human body.

19. Glucose is an aldose. Which one of the following reactions is not expected with glucose?
   a) It does not form oxime
   b) It does not react with Grignard reagent
   c) It does not form osazones
   d) It does not reduce tollens reagent
20. If one strand of the DNA has the sequence ‘ATGCTTGA’, then the sequence of complementary strand would be
   a) TACGAAC T b) TCCGAAC T c) TACGTAC T d) TACGRAGT

21. Insulin, a hormone chemically is
   a) Fat b) Steroid c) Protein d) Carbohydrates

22. α-D (+) Glucose and β-D (+) glucose are
   a) Epimers b) Anomers c) Enantiomers d) Conformational isomers

23. Which of the following are epimers
   a) D(+)Glucose and D(+)Galactose b) D(+)Glucose and D(+)Mannose
   c) Neither (a) nor (b) d) Both (a) and (b)

24. Which of the following amino acids are achiral?
   a) Alanine b) Leucine c) Proline d) Glycine

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**Unit 15 – Chemistry in Every Day Life**

I. Choose the correct answer:

1. Which of the following is an analgesic?
   a) Streptomycin b) Chloromycetin c) Aspirin d) Penicillin

2. Dettol is the mixture of
   a) Chloroxylenol and bithionol b) Chloroxylenol and α-terpineol
   c) phenol and iodine d) terpineol and bithionol

3. Antiseptics and disinfectants either kill or prevent growth of microorganisms. Identify which of the following statement is not true.
   a) dilute solutions of boric acid and hydrogen peroxide are strong antiseptics.
   b) Disinfectants harm the living tissues.
   c) A 0.2% solution of phenol is an antiseptic while 1% solution acts as a disinfectant.
   d) Chlorine and iodine are used as strong disinfectants

4. Saccharin, an artificial sweetener is manufactured from
   a) cellulose b) toluene c) cyclohexene d) starch

5. Drugs that bind to the receptor site and inhibit its natural function are called
   a) antagonists b) agonists c) enzymes d) molecular targets

6. Aspirin is a/an
   a) acetylsalicylic acid b) benzoyl salicylic acid
   c) chlorobenzoic acid d) anthranilic acid
7. Which one of the following structures represents nylon 6,6 polymer?

8. Natural rubber has
   a) alternate cis- and trans-configuration   b) random cis- and trans-configuration
   c) all cis-configuration   d) all trans-configuration

9. Nylon is an example of
   a) polyamide   b) polythene   c) polyester   d) poly saccharide

10. Terylene is an example of
    a) polyamide   b) polythene   c) polyester   d) polysaccharide

11. Which is the monomer of neoprene in the following?

12. Which one of the following is a bio-degradable polymer?
    a) HDPE   b) PVC   c) Nylon 6   d) PHBV

13. Non stick cook wares generally have a coating of a polymer, whose monomer is
    a) ethane   b) prop-2-enenitrile
    c) chloroethene   d) 1,1,2,2-tetrafluoroethane

14. Assertion: 2-methyl-1,3-butadiene is the monomer of natural rubber
    Reason: Natural rubber is formed through anionic addition polymerisation.
    a) If both assertion and reason are true and reason is the correct explanation of assertion.
    b) if both assertion and reason are true but reason is not the correct explanation of assertion.
    c) assertion is true but reason is false.   d) both assertion and reason are false.
15. An example of antifertility drug is
   a) novestrol  b) seldane  c) salvarsan  d) Chloramphenicol
16. The drug used to induce sleep is
   a) paracetamol  b) bithional  c) chloroquine  d) equanil
17. Which of the following is a co-polymer?
   a) Orlon  b) PVC  c) Teflon  d) PHBV
18. The polymer used in making blankets (artificial wool) is
   a) polystyrene  b) PAN  c) polyester  d) polythene
19. Regarding cross-linked or network polymers, which of the following statement is incorrect? (NEET)
   a) Examples are Bakelite and melamine
   b) They are formed from bi and tri-functional monomers
   c) They contain covalent bonds between various linear polymer chains
   d) They contain strong covalent bonds in their polymer chain
20. A mixture of chloroxylenol and terpinecol acts as (NEET)
   a) antiseptic  b) antipyretic  c) antibiotic  d) analgesic

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