**1.** Mass of 4 cups of water = 1000 g

\[ \text{Mass of } \frac{1}{2} \text{ cup of water} = \frac{1000}{8} = 125 \text{ g} \]

Molecular mass of water (H₂O) = 18g

\[ \text{18 g mass of water = 1 mol = } 6.02 \times 10^{23} \text{ molecules} \]

\[ \text{125 g mass of water} = \left( \frac{125}{18} \right) \times 6.02 \times 10^{23} \text{ molecules} \]

Each molecule of H₂O has 1 + 1 + 8 = 10 electrons or 10 protons

\[ \text{Total } (-)\text{ve or } (+)\text{ve charge} = \left( \frac{125}{18} \right) \times 6.02 \times 10^{23} \times 10 \times 1.6 \times 10^{-19} \text{ C} \]

\[ = 6.7 \times 10^6 \text{ C} \]

**2.** \[ B = \frac{\mu_0 I}{2\pi x} \Rightarrow B \propto \frac{1}{x} \]

The graph is a rectangular hyperbola.

**4.** For interference to take place the wavelength (or frequencies) of the interfering waves should be equal.

\[ \lambda_2 \neq \lambda_0 \]

\[ \therefore \text{No interference fringes are formed.} \]

**5.** \[ U = \frac{1}{4\pi \varepsilon_0} \frac{q_1 q_2}{r} = 9 \times 10^9 \times \frac{5 \times (-2) \times 10^{-12}}{0.18} = -0.5 \text{ J} \]

**7.** Vertical component of earth's magnetic field

\[ B_v = B \sin 30^\circ = 3 \times 10^{-4} \text{ T} \]

\[ e = B_v \ell v = 3 \times 10^{-4} \times \left( 600 \times \frac{5}{18} \right) (10) = 0.5 \text{ V} \]
8. \( \vec{v} \perp \vec{B} \)  
\( \vec{v} \times \vec{B} = 0 \)  
\( \vec{F}_B = 0 \) \((\because \vec{F}_B = -e(\vec{v} \times \vec{B})\)  
\( p = \) const.  
\( \lambda = \frac{h}{p} \) \((\because \lambda\) remains constt.\)  

9. Let \( x \) be the distance of the point where \( V = 0 \), on the line joining the charges from 3 µC towards –2 µC.  
If \( x < 15 \) cm, then  
\[ 3\cos(90\degree) = 3 \Rightarrow x = 9 \text{ cm} \]  
If \( x > 15 \) cm, then  
\[ 3\cos(90\degree) = 3 \Rightarrow x = 45 \text{ cm} \]  
\( \therefore \) Required distance = 45 – 9 = 36 cm

10. Mag. field due to AB and AC is zero

Mag. field due to BC = \( \frac{\mu_0 I}{4\pi} (\sin 45\degree) \)  
Here AM = \( \frac{a}{\sqrt{2}} \)

11. Angular impulse = change in angular momentum  
\( \tau \Delta t = (Io - 0) \)  
or  
FR\Delta t = MR^2\omega  
where \( F = qE \)  
\( \therefore E = \left( \frac{d\phi}{dt} \right) \left( \frac{1}{2\pi R} \right) \)  
\( \Rightarrow F = (2\pi R\lambda) \left( \frac{\Delta\phi}{\Delta t \times 2\pi R} \right) \)  
\( \Rightarrow F = \lambda \frac{\Delta\phi}{\Delta t} \) from (1)  
\( \therefore \lambda \frac{\Delta\phi}{\Delta t} (\Delta t)R = MR^2\omega \)  
or  
\( \lambda R(B\pi R^2) = MR^2\omega \) or  
\( \omega = \frac{\pi RB\lambda}{M} \)

12. \( r_n \times \frac{1}{Z} \)  
\( r_{li} \)  
\( \frac{Z_{li}}{Z_{ri}} = \frac{1}{3} \)  
\( r_{li} = \frac{53}{3} \) pm  
\( \approx 18 \) pm

13. When capacitor is charged by battery then energy loss = \( \frac{E}{2} \).  
When the capacitor is combined with another capacitor, energy loss = \( E/4 \).  
\( \therefore \) Total energy loss = \( E/2 + E/4 = 3E/4 \).

16. Mass of H-atom = \( m_p + m_e - \frac{BE}{c^2} = M_H \)  
and \( BE = 13.6 \) eV  
or  
\( m_p + m_e - m_H = \frac{BE}{c^2} = \frac{13.6 \times 1.6 \times 10^{-19}}{(3 \times 10^8)^2} \) kg  
\( \approx 0.015 \) amu
No current in capacitor

17. Orange \( \rightarrow 3 \), blue \( \rightarrow 6 \), yellow \( \rightarrow 4 \)  
\( \therefore R = 36 \times 10^4 \) \( \Omega \)  
and golden \( \rightarrow 5\% \) tolerance.

18. \( L = mvr = m(\omega^2r) \)  
and \( M = I(\pi r^2) = \frac{q_o \pi r^2}{2\pi} = \frac{q_o r^2}{2} \)  
\( \therefore \)  
\( N \)  
\( \frac{2m}{M} = \frac{q}{q_o} \)

21. \( C = \frac{1\varepsilon_0}{\varepsilon_o} \) or \( A = \frac{Cd}{\varepsilon_0} = \frac{1 \times 10^{-2}}{8.85 \times 10^{-12}} \approx 10^9 \) m\(^2\)  
\( \therefore \)  
a\(^2\) = \( 10^9 \) m\(^2\) \( \Rightarrow a \approx 31.6 \times 10^3 \)m

22. The particle executes SHM along the tunnel. If \( R \) is the radius of the sphere then \( x = R\sin(\omega t + \phi) \)  
Here \( x = -R \) when \( t = 0 \)  
\( \therefore R = R\sin(0 + \phi) \Rightarrow \phi = 3\pi/2 \)  
\( \therefore x = -R\cos\left(\frac{2\pi}{T} t\right) \)  
\( \therefore \omega = \frac{2\pi}{T} \)

At \( B \) \( x = -R/2 \)  
\( \therefore R = R\cos\left(\frac{2\pi}{T} t\right) \)  
or  
\( \cos\left(\frac{2\pi}{T} t\right) = \frac{1}{2} \Rightarrow t_0 = \frac{\pi}{3} \)  
or  
\( t_0 = \frac{T}{6} \)

Now time taken to travel from A to O is \( t' = \frac{T}{4} \)  
\( \therefore \) Required time taken to go from B to O \( = t' - t_0 = t_0/2 \)
23. Since $\mathbf{E} \perp \mathbf{B}$
\[ \therefore \mathbf{j} \times \mathbf{B} \perp \mathbf{i} \Rightarrow \mathbf{B} \perp \mathbf{k} \]
\[ \therefore a = z \]

Also, $c = \frac{E}{B}$ \[ \therefore E = Bc \]

$E = 1 \times 10^{-7} \times 3 \times 10^8 = 30 \text{ V/m}$

Phase of $\mathbf{E} = \text{Phase of } \mathbf{B}$
\[ \therefore e = 1 \times 10^3 \]

and $c = \text{coeff. of } t$
\[ \text{coeff. of } x = \]
\[ \therefore \text{coeff. of } t = c \times \text{coeff. of } x = d = 3 \times 10^8 \times 1 \times 10^3 \]

or $d = 3 \times 10^{11} \text{ s}^{-1}$

25. [Polarisation] $\ \ \ \ = \frac{\text{dipole moment}}{\text{volume}} = \frac{p}{v} = \frac{qd}{v}$

$= \frac{A \times T}{L^2}$

26. Applying Kirchoff’s law to the loops:

ADCA we have
\[ 7I_1 - 6I_2 - 2I_3 = 10 \] \[ \text{(i)} \]

ABCA, we have
\[ I_1 + 6I_2 + 2I_3 = 10 \] \[ \text{(ii)} \]

and BCDB we have
\[ 2I_1 - 4I_2 - 4I_3 = -5 \] \[ \text{(iii)} \]

Solving, we get
\[ I_2 = \frac{5}{8} A \]
\[ \therefore V_{AB} = I_2 \times 4 = \frac{5}{8} \times 4 = 2.5 \text{ V} \]

27. \[
\begin{align*}
\mathbf{B}_1 &= \frac{\mu_0 I}{2r} = B \quad \text{...(i)} \\
\mathbf{B}_2 &= 4 \left( \frac{\mu_0}{4\pi (a/2)} \times \frac{1}{\sqrt{2}} \right) \\
&= \frac{2\sqrt{2}\mu_0 I}{\pi a} \quad \text{...(ii)} \\
\end{align*}
\]

Dividing (ii) by (i)
\[ \therefore \mathbf{B}_2 = \frac{4\sqrt{2}r.B}{\pi a} \]

Also, $2\pi r = 4a \Rightarrow \frac{r}{a} = \frac{2}{\pi}$
\[ \therefore \mathbf{B}_2 = \frac{4\sqrt{2}}{\pi} \left( \frac{2}{\pi} \right) B \]
\[ = \frac{8\sqrt{2}B}{\pi^2} \]

30. Mobility $\mu = \frac{v_d}{E} = \frac{m/s}{N/C} = \frac{m(As)}{Ns} = \frac{LA}{MLT^2} = (M^{-1}T^2A)$

31. The first colour to emerge will be the one with highest speed or lowest refractive index from Cauchy’s equation.
\[ \mu = A + \frac{B}{\lambda^2} \]
\[ \therefore \mu \text{ will be lowest whose } \lambda \text{ is longest red colour has the longest } \lambda \]

32. $V_{AC} = 0.1 \times 10 + 0.1 \times 5 + 0.5 \text{ V} = 2 \text{ V}$

33. Lorentz force
\[ \mathbf{F} = (-e) (\mathbf{v} \times \mathbf{B}) \]
\[ = (-e) (v_o \hat{k} \times \mathbf{B}_o \hat{j}) \]
\[ = ev_o \mathbf{B}_o \hat{i} \]
35. The prism is in the position of minimum deviation
⇒ \( r_1 = r_2 = \frac{A}{2} = 5^\circ \)
\[ \delta_m = (\mu_{\text{rel}} - 1)A \]
\[ = (1.5 - 1) \times 10^9 \]
\[ = 5^\circ \]

36. \( I_b = \frac{2.5}{100 \times 10^7} = 25 \mu A \) as \( V_{BE} \) and \( V_{CE} \) negligible
\[ I_c = \frac{20}{6 \times 10^7} = 3.33 \text{ mA} \]  
⇒ \( V_{BE} \approx 0, V_{CE} \approx 0 \)
\[ \therefore \beta = \frac{I_c}{I_b} = 133 \]

37. Frequency \( f = \frac{1}{2\pi} \left( \frac{qB}{m} \right) \)

Here \( q = e = 1.6 \times 10^{-19} \text{ C} \)

38. Relative permeability can never be negative.

39. As refractive index
\[ \mu = \frac{\text{Real depth}}{\text{Apparent depth}} \]

40. Area = \( \pi r^2 \) (\( r = \text{range} \))
\[ = \pi \left( \sqrt{2Rh} \right)^2 \]
\[ = 2\pi Rh \]
\[ = 2 \times 3.14 \times 6.4 \times 10^6 \times 20 \text{ m}^2 \]
\[ = 804 \text{ km}^2 \]

41. \( \lambda_{\text{AgCl}} = K \times \frac{1000}{M} \)
\[ K_{sp} = S^2 \]

42. An increase in rate of reaction in forward direction by a catalyst for a reaction in equilibrium brings in an increase in concentration of products and thus rate of backward reaction also increases to same magnitude and the equilibrium position is not altered.

43. Inert pair effect occurs in heavier p-block elements.

44. Reactivity towards \( \alpha \) stability of \( C^\circ \)
\[ S_N \]

45. \( \pi = i \text{ CST} \)
\[ i = 1 - \alpha + n\alpha \]
\[ n = 4 \]

47. \( 2P_x - 2P_y = \pi \text{ bond} \)
\( 3P_y - 3P_y = \pi \text{ bond} \)
\( 2P_x - 2P_y = \sigma \text{ bond} \)

48. Relative stability of \( C^\circ \) formed from other halide

50. \( E_{\text{cell}}^{\circ} = 1.33 \text{ V} \) and \( E_{\text{cell}}^{\circ} = 0.77 \text{ V} \)
\[ \therefore E_{\text{cell}}^{\circ} \text{ is more thus it will oxidise or electron will flow from fe electrode to Cr electrode. Also, Fe electrode will be negative. Also} \]
\[ E_{\text{cell}} = E_{\text{cell}}^{\circ} + E_{\text{cell}}^{\circ} = -0.77 + 1.33 \]
52. \[
\begin{align*}
\text{NO}_2 & \quad \text{Sn/HCl} & \quad \text{NH}_3 \\
\text{CH}_3 & & \text{CH}_3 \\
(A) & & (B)
\end{align*}
\]

Balz-Schiemann reaction

56. \[
\begin{align*}
\text{O} & \quad \text{COOC}_2\text{H}_5 \\
\text{LiAlH}_4/H^+ & \quad \text{OH}_2\text{CHCH}_2 \\
\text{CH}_3 & \quad \text{CH}_3 \\
\end{align*}
\]

NaBH\textsubscript{4} does not reduce Ester

58. \[
\begin{align*}
\text{O} & \quad \text{COOC}_2\text{H}_5 \\
\text{LiAlH}_4/H^+ & \quad \text{OH}_2\text{CHCH}_2 \\
\text{CH}_3 & \quad \text{CH}_3 \\
\end{align*}
\]

\[\text{H}_2\text{CrO}_4\] oxidise \(i^+\) alcohol to carboxylic acid

compound \([\text{Cr}^{3\text{F}_4\text{O}^{-2}}]\) (CN = 5) is a neutral molecule so there should not be potassium cation.

56. \[
\begin{align*}
\text{O} & \quad \text{COOC}_2\text{H}_5 \\
\text{LiAlH}_4/H^+ & \quad \text{OH}_2\text{CHCH}_2 \\
\text{CH}_3 & \quad \text{CH}_3 \\
\end{align*}
\]

58. \[
\begin{align*}
\text{O} & \quad \text{COOC}_2\text{H}_5 \\
\text{LiAlH}_4/H^+ & \quad \text{OH}_2\text{CHCH}_2 \\
\text{CH}_3 & \quad \text{CH}_3 \\
\end{align*}
\]

60. \[
\begin{align*}
\text{CH}_3 & \quad \text{C} = \text{O} \cdot \text{C}_2\text{H}_5 + \text{CH}_3 \cdot \text{C} = \text{O} \cdot \text{C}_2\text{H}_5 \\
\text{C}_6\text{H}_5\text{Na} & \quad \text{CH}_3 \cdot \text{C} = \text{O} \cdot \text{C}_2\text{H}_5 + \text{CH}_3 \cdot \text{C} = \text{O} \cdot \text{C}_2\text{H}_5 \\
\text{OH} & \quad \text{CH}_3 \cdot \text{C} = \text{O} \cdot \text{C}_2\text{H}_5 + \text{CH}_3 \cdot \text{C} = \text{O} \cdot \text{C}_2\text{H}_5 \\
\text{Ph} & \quad \text{CH}_3 \cdot \text{C} = \text{O} \cdot \text{C}_2\text{H}_5 + \text{CH}_3 \cdot \text{C} = \text{O} \cdot \text{C}_2\text{H}_5 \\
\text{OH} & \quad \text{CH}_3 \cdot \text{C} = \text{O} \cdot \text{C}_2\text{H}_5 + \text{CH}_3 \cdot \text{C} = \text{O} \cdot \text{C}_2\text{H}_5 \\
\text{Ph} & \quad \text{CH}_3 \cdot \text{C} = \text{O} \cdot \text{C}_2\text{H}_5 + \text{CH}_3 \cdot \text{C} = \text{O} \cdot \text{C}_2\text{H}_5 \\
\end{align*}
\]

Clasien Ester condensation

62. (1) \([\text{FeCl}^4\text{(CN)}_4\text{(O}_2)^{4-}]^+\); \(O_2\) is \(O_2^{2-}\); \(CN^-\) is strong field ligand, so compels for the pairing of electrons.

\[
\text{Fe}^{3+} \rightarrow 3d^6
\]

\[
\begin{array}{c}
\text{d'sp}^3
\end{array}
\]

(2) \([\text{K}_4\text{Fe}^2\text{(CN)}_6]^-\); \(CN^-\) is strong field ligand so compels for the pairing of electrons.

63. \text{BF}_3 + 3\text{LiBH}_4 \xleftrightarrow{} 3\text{LiF} + 2\text{B}_2\text{H}_6

64. \[
\begin{align*}
\text{CH}_\text{CH} & \quad 1\% \text{KMnO}_4/\text{OH} \\
\text{H}_2\text{C} & \quad \text{C} = \text{CH}_2 \\
\text{cold, dil.} & \quad \text{CH}_3 \cdot \text{C} = \text{C} = \text{C} \cdot \text{CH}_2 \\
\text{PhMgBr} & \quad \text{CH}_3 \cdot \text{C} = \text{C} = \text{C} \cdot \text{CH}_2 \\
\text{OH} & \quad \text{CH}_3 \cdot \text{C} = \text{C} = \text{C} \cdot \text{CH}_2 \\
\text{Ph} & \quad \text{CH}_3 \cdot \text{C} = \text{C} = \text{C} \cdot \text{CH}_2 \\
\end{align*}
\]

Clasien Ester condensation

65. \[
\begin{align*}
\text{X-fcc} & = 4 \\
\text{Y-Tetrahedral void} & = 8 \\
\text{Z-1/2 of octahedral void} & = 2 \\
\text{Hence,} & \quad X_4Y_8Z_2 = X_2Y_4Z
\end{align*}
\]

66. \[
\begin{align*}
\text{Li} & \quad \text{reacts with} \quad \text{N}_2 \quad \text{and} \quad \text{O}_2 \quad \text{of} \quad \text{air} \quad \text{forming} \quad \text{Li}_3\text{N} \quad \text{and} \quad \text{Li}_2\text{O} \quad \text{but} \quad \text{Na} \quad \text{reacts} \quad \text{with} \quad \text{only} \quad \text{O}_2 \quad \text{forming} \quad \text{Na}_2\text{O} \quad \text{not} \quad \text{with} \quad \text{N}_2 \quad \text{forming} \quad \text{Na}_3\text{N} \quad \text{(it requires high temperature.)}
\end{align*}
\]
67. (A) \(\text{NH}_4\text{NO}_2 \xrightarrow{\Delta} \text{N}_2 + 2\text{H}_2\text{O}\),
(B) \(\text{NH}_4\text{NO}_3 \xrightarrow{\Delta} \text{N}_2\text{O} + 2\text{H}_2\text{O}\),
(C) \(2\text{Na}_3 \xrightarrow{\Delta} 3\text{N}_2 + 2\text{Na}\).

68. p and m-isomer form intermolecular H-bonding, o-isomer form intramolecular H-bonding.

69. \(\Delta T_f = K_f \times \text{molality} \times i\)
\[2 = 1.72 \times \frac{20}{172} \times \frac{1000}{50} \times i \Rightarrow i = 0.5\]

70. Due to back bonding in BF\(_3\), B—F bond attains partial double bond character.

71. Only 1° amine give isocyanide test.

72. \((\text{CH}_3)_3\text{CO}^+\) it is a bulky gp. so major product will be according to Hoffman's Rxn.

74. TeF\(_6\) > SeF\(_6\)
Due to large size of central atom.
CCl\(_4\), PF\(_3\) and NF\(_3\) are not hydrolysed under normal condition.

75. products obtained by antmarkovnikov syn addition of H and D-

76. –COOH, –SO\(_3\)H group are too acidic so can soluble in \(\text{NaHCO}_3\)
– Phenol with 2 or more NO\(_2\) groups on ring (ortho & para positions) becomes acidic with low pKa, so soluble in \(\text{NaHCO}_3\).

78. Acetic Acid exist in dimeric form in vapour state and in non-polar solvent.

79. \(\text{O} \quad \equiv \quad \equiv \quad \text{O}\)
does not have benzylic H

80. CH\(_3\)-C-\(\equiv\)-NH\(_2\), does not give iodoform rxn. because \(\alpha\)-H is not released as \(\text{H}^+\).

81. NCERT (XII) Pg. # 25, 27, 28, 34 (E), 27,30,35 (H)
89. NCERT (XII) Pg. # 23 (E), 24 (H)
93. NCERT (XII) Pg. # 27 (E), 28 (H)
97. NCERT (XII) Pg. # 35 (E), 37 (H)
121. The current flowing through resistor generates heat which gets dissipated in the surrounding (Joule's effect)
122. Electron and negative beta particle are essentially identical in nature.
123. All EM waves have same speed \(c_0 = 3 \times 10^8 \text{ m/s in vaccum. They have different frequencies and wavelengths.}\)
125. Conceptual.
126. Turpentine is optically more denser than water.
When light travels from turpentine into water, it bends away from the normal.
127. Brewster's law is an experimental law. The reason given can be arrived at (i.e., concluded) on the basis of the law. Hence it is not the correct explanation.
128. \(h \propto \lambda\)
129. For diffraction to be observable \(\lambda \approx d\)

130. Here \(\phi\) depends on \(R, L, C & \omega\)

131. In total internal reflection the incident light gets reflected 100%.
132. Even if the resistance is zero, the energy of the system decreases due to the emission of electromagnetic waves.

133. \(f_c = \sqrt{\frac{N_{\text{max}}}{81}} \Rightarrow N_{\text{max}} = \frac{f_c^2}{81} \Rightarrow N_{\text{max}} \propto f_c^2\)
134. An electric field always results between two points in a changing magnetic field, no matter whether a medium is present or not.

135. For LOS communication diffraction effect experienced by the waves should be less. For this their frequencies should be more than 40 MHz – 50 MHz.

136. According to Ampere's law of parallel currents

\[ F \propto \frac{1}{d} \]

However \( B \propto \frac{1}{d^2} \) and not \( \frac{1}{d} \)

137. For Balmer series

\[ \frac{1}{\lambda} = 1.097 \times 10^7 \text{ m}^{-1} \left( \frac{1}{n^2} - \frac{1}{n'^2} \right) \]

For 1 \(^{st}\) spectral line of balmer \( n = 3 \).

\[ \lambda = 656 \text{ nm} \]

138. By definition

\[ j = \left( \frac{1}{\Delta S} \right) (\Delta S \cdot j) \]

139. Einstein's photo electric equation

\[ K_{\text{max}} = hf - \phi \]

Compare with \( y = mx + c \)

140. When charges are displaced then E changes

however \( \phi = \oint E \cdot d\mathbf{s} \) remains unchanged

142. Both A and R correct but R is not correct explanation of A.

144. [SiCl\(_6\)]\(^2-\) does not exist as smaller Si cannot accommodate six larger Cl\(^-\) because of steric hindrance.

Reason is correct statement.

145. Assertion is false but reason is true.

Electrode when joined with SHE acts as anode.

147. Both assertion and reason are false.

Energy of electron depends on both \( n \) and \( l \) hence the order given in assertion is totally wrong as per \((n + l)\) rule. However, exception to this is 'H' and H-related species, which are very few.

153. **Assertion** : \( \Delta_0 \) increases as charge on cation increases and nuclear charge increases.

**Reason** : \( \Delta_0 \) for [Co(NH\(_3\))\(_6\)]\(^3+\) = 296 KJ mol\(^{-1}\)

[Rh(NH\(_3\))\(_6\)]\(^3+\) = 406 KJ mol\(^{-1}\)

155. Greater the number of valence electrons, stronger is the resultant bonding and higher the enthalpy of atomisation.
185. The University of South Florida has announced a postgraduate fellowship in the name of former president Dr. APJ Abdul Kalam to support accomplished and talented Indian students looking to study abroad.

186. 'Playing It My Way' is the autobiography of former Indian Cricketer Sachin Tendulkar.

187. Lead pencils contain graphite. The 'Lead' of the pencil is actually a mix of finely ground graphite and clay powders.

188. (Graphics) pixels, resolution and colour are the fundamentals of computer graphics.

189. At 40, Mr. Rajiv Gandhi was the youngest Prime Minister of India.

190. Baji Rao I served as Peshwa (Prime minister) to the fourth Maratha Chhatrapati (King) Sahu. In his brief military career spanning 20 years, Bajirao never lost a battle.

191. Ranchi, Bhopal and Gandhinagar are situated south of the tropic of cancer line.

192. Out of the eight planets, Mercury, Venus, Earth and Mars are called as inner planets as they lie between Sun and the belt of asteroids. The other four planets are called the outer planets.

193. Telangana was formed on 2nd June 2014 with the city of Hyderabad as its capital. Amaravati is the new capital of Andhra Pradesh.

194. 'Silviculture' is the practice of controlling the establishment, growth, composition, health and quality of forests to meet diverse needs and values.

195. Amalgam is a combination of mercury with other metals and has been used as a tooth filling material since early in the 19th century.

196. The Gir forest National Park and wildlife sanctuary is the largest and wild life sanctuary in Gujrat, India. Established in 1965. It is the sole home of Asiatic lions.

197. Apurvi Singh Chandela is an Indian Shooter who competes in the 10 meter air rifle event. She won the silver medal in the 2014 Commonwealth Games in Glasgow.

198. The 2015 'Stockholm water prize' was awarded to Rajendra Singh. Who is dubbed 'The water man of India' for his modern take on a Indian way of life. Farmers called 'Johads'.

199. The lion capital of Ashoka is a sculpture of four Asiatic lions standing back to back, on an elaborate base. A graphic representation of it was adopted as official Emblem of India in 1950.

200. Economic growth is conventionally measured as the percent rate of increase in real gross domestic product or real GDP.