PLATFORM

5, Central Road, 1st Floor, Jadvapur, Kol- 700032

NEET 21 Answer Keys & Hints MOCK 07

BIOLOGICAL SCIENCE ANSWER KEY															
1	(1)	13	(1)	25	(2)	37	(1)	49	(4)	61	(4)	73	(1)	85	(1)
2	(2)	14	(3)	26	(3)	38	(2)	50	(3)	62	(4)	74	(3)	86	(1)
3	(3)	15	(4)	27	(2)	39	(3)	51	(1)	63	(4)	75	(3)	87	(4)
4	(2)	16	(2)	28	(4)	40	(3)	52	(4)	64	(4)	76	(2)	88	(3)
5	(3)	17	(1)	29	(4)	41	(4)	53	(3)	65	(1)	77	(1)	89	(4)
6	(1)	18	(1)	30	(1)	42	(2)	54	(1)	66	(1)	78	(1)	90	(2)
7	(1)	19	(1)	31	(4)	43	(2)	55	(4)	67	(4)	79	(3)		
8	(1)	20	(3)	32	(4)	44	(2)	56	(2)	68	(2)	80	(1)		
9	(3)	21	(3)	33	(2)	45	(3)	57	(4)	69	(2)	81	(4)		
10	(3)	22	(4)	34	(4)	46	(1)	58	(2)	70	(2)	82	(4)		
11	(2)	23	(2)	35	(2)	47	(4)	59	(2)	71	(4)	83	(4)		
12	(1)	24	(1)	36	(1)	48	(1)	60	(3)	72	(1)	84	(1)		

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NEET 21 **Answer Keys & Hints** **MOCK 07**

CHEMISTRY & PHYSICS ANSWER KEYS

91	(4)	103	(1)	115	(2)	127	(3)	139	(1)	151	(2)	163	(1)	175	(1)
92	(2)	104	(2)	116	(1)	128	(3)	140	(3)	152	(3)	164	(3)	176	(1)
93	(1)	105	(4)	117	(3)	129	(2)	141	(2)	153	(4)	165	(1)	177	(1)
94	(3)	106	(3)	118	(4)	130	(2)	142	(4)	154	(4)	166	(2)	178	(3)
95	(3)	107	(3)	119	(4)	131	(2)	143	(1)	155	(2)	167	(1)	179	(2)
96	(3)	108	(2)	120	(3)	132	(2)	144	(3)	156	(4)	168	(2)	180	(4)
97	(3)	109	(2)	121	(2)	133	(3)	145	(3)	157	(4)	169	(3)		
98	(1)	110	(3)	122	(4)	134	(2)	146	(1)	158	(1)	170	(2)		
99	(2)	111	(4)	123	(4)	135	(2)	147	(1)	159	(1)	171	(3)		
100	(2)	112	(3)	124	(2)	136	(3)	148	(2)	160	(3)	172	(3)		
101	(3)	113	(1)	125	(1)	137	(1)	149	(2)	161	(4)	173	(4)		
102	(2)	114	(3)	126	(3)	138	(4)	150	(2)	162	(1)	174	(2)		

BIOLOGICAL SCIENCE:

001. Molybdenum is essential to plant growth as a component of the enzymes nitrate reductase and nitrogenase. Legumes need more molybdenum than other crops, such as grass or corn, because the symbiotic bacteria living in the root nodules of legumes require molybdenum for the fixation of atmospheric nitrogen.

006. Tetany is a condition marked by intermittent muscular spasms, caused by malfunction of the parathyroid glands and a consequent deficiency of calcium.

009. Darwin's finches are good example of adaptive radiation. It is an evolutionary process starting from a point in a geographical area, giving rise to new species depending upon habitat. Main Darwin finch was in South America, some flew to Galapagas islands and some variations got selected and gave rise to new species.

011. The common nitrogen-fixer in paddy fields is: *Azospirillum. Azospirillum* is a nitrogen fixing bacterium in paddy fields. It is very useful soil and root bacterium. It is an associative symbiotic N2-fixing bacteria. When it is added to the soil, it multiplies in millions and can supply 20-40 Kg of nitrogen per hectare, per season. It also produces growth promoting substances like Indole Acetic Acid (IAA), gibberellins and promotes root proliferation. These substances improve the plant growth and yield.

014. The cytoplasm is the main arena of cellular activities in both the plant and animal cells. Various chemical reactions occur in it to keep the cell in the 'living state'. Though biochemical reactions occur all over a cell, important reactions related to maintaining osmolarity, resting potential (in neurons, muscles and other electrically excitable cell) occur in cytoplasm - which keeps it 'alive'

015. Goblet cells present in intestine secrete mucous. Mucous will help in smooth movement of food down the intestine.

020. The second maturation division of the mammalian ovum occurs: Shortly after ovulation before the ovum makes entry into the Fallopian tube. Until after the ovum has been penetrated by a sperm. Until the nucleus of the sperm has fused with that of the ovum.

021. Satellite DNA regions like VNTR/RFLP are basis of DNA fingerprinting.

025. Sporophytic budding or adventitive embryony in Citrus.

028. Anterior shortest petal in Fabaceae.

030. Semi-autonomous organelle due to ds circular DNA and 55S ribosomes.

033. Breeding for improved nutritional quality is the objective of biofortification.

036. Plasmodesmata is a category of gap junction in plants.

038. Advanced type of placentation with single ovule in Asteraceae and Poaceae.

040. No mixing of alleles.

049. *Trichoderma*- Effective bio-control agent for several plant pathogens.

050. If the adrenal cortex is injured it will not affect the secretion of adrenaline, because it is secreted by adrenal medulla.

054. Net Primary Productivity is the production of organic compounds from atmospheric or aquatic carbon dioxide, principally through the process of photosynthesis, with chemosynthesis being much less important. All life on earth is directly or indirectly reliant on primary production. The organisms responsible for primary production are known as primary producers or autotrophs, and form the base of the food chain. In terrestrial eco-regions, these are mainly plants, while in aquatic eco-regions algae are primarily responsible. Primary production is distinguished as either net or gross, the former accounting for losses to processes such as cellular respiration, the latter not.

058. Codons are non-ambiguous except GUG.

062. Cell elongation on darker side.

064.
Gametophytes (♂ and ♀) are highly reduced in gymnosperms and angiosperm

065. China rose family shows cohesion of stamens by union of filaments into single bundle, known as monadelphous.

069. DNA/RNA segment tagged with radioactive molecule is called probe.

074. Toxic agents in food which interfere with thyroxin synthesis will lead to simple goitre. Thyrotoxicosis and toxic goitre are under the category of hyperthyroidism.

077. Flatworms are triploblastic and acoelomate. Whereas, sponges have cell aggregate type of body plan and ctenophores and corals are diploblastic.

079. Cu ions released by copper releasing intra uterine devices suppresses sperm motility. Intra-uterine devices are inserted by doctors in the uterus through vagina. They are available as the non-medicated IUDs, copper releasing IUDs and hormone releasing IUDs.

080. Restriction endonucleases cuts the DNA at specific position within the DNA molecule.

081. Primary growth.

083.
C_4 plants have high rate of photosynthesis at higher temperature.

087. Bt toxin genes were isolated from *Bacillus thuringiensis* and incorporated into cotton plant to form a genetically modified crop called Bt cotton. Bt cotton has high yield and resistance to bollworms.

088. Non-functional wood due to tylose formation and deposition of secondary metabolites.

CHEMISTRY:

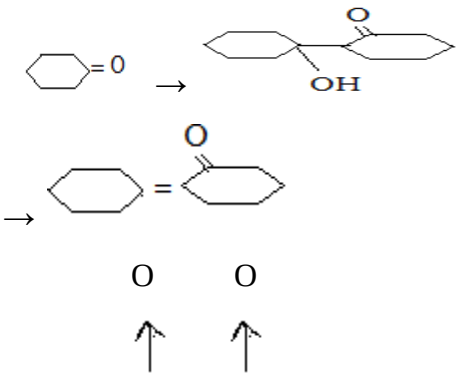
91. (4)

$Li_3Na_3(AlF_6)_2 \rightarrow 3Li^+ + 3Na^+ + 2AlF_6^-$

S 3S 3S

$Ksp = (3S)^3 (3S)^3 (3S)^3 = 2916S^8$

92. (2)



93. (1) H – P – O – P – OH

OH H

94. (3)

$R – OH + CH_3MgBr \rightarrow CH_4$

1 mol 22400 ml.

11.2 ml ev4 at STP aformed from 0.037 gr ROH

22400 ml → $\frac{0.037 \times 22400}{}$

= 74 gm ROH

95. (3) $\Delta H = H_2 – H_1 = (E_2 + P_2V_2) – (E_1 + P_1V_1)$

$= (E_2 – E_1) + (P_2V_2 – P_1V_1)$

$\Delta H = 30 + (4x5 – 2x3) = 44$ Latm.

96. (3)

97. (3)

0.N of Cr = +3 Cr^{+3} occupied 3C*l* orbitals & its coordination no of given complex is 6.

98. (1) P_{gas} = Patm + hdg

hdg = Pgas – patm = 77 – 76 = 1 cm Hg

$= 1 \times d \times$

= 1 cm

99. (2) Acidic strength $\propto$ (-I) effect

100. (2)

$C_6H_5C_2=C-C_6H_5 \xrightarrow[Pd/CaCO_3]{H}$

$C6H_7 – CH = CH – C_6H5$

$\xrightarrow{KMNO_4}$

$2C_6H_5COOH$

101. (3)

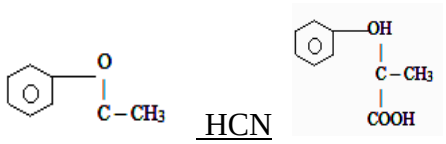
102. (2) For Li + 2 ion & H atom in their ground state $(E_1)_{Li+2}$ - $1312 \times 3^2/12$ = 9

(E_1) H - 1312/12

103. (1)

104. (2) Anti azomatic (4n –π electron system)

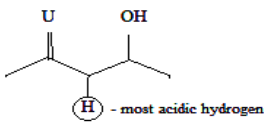
105. (4)



$\xrightarrow[H_3O^+]{HCN}$

106. (3)

107. (3)

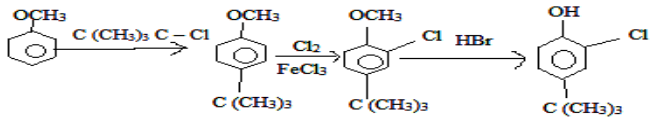


108. (2)

109. (2) C_4H_4O repreaents foram – Therefore

it is heterougelic & aromatic

110. (3) Because in this method, each funetional group up pear at a certain peak. So cyclehekanone can be identified by carbonnel peak



111. (4)

112. (3)

$$4NH_3 + 5O_2 \rightarrow 4NO + 6H_2O$$

4 5 4 6

0.8 1 0.8 1.2

Thus for 1 mole of 02 only 0.8 mole of NH_3 is consumed. Hence O_2 is consumed completely.

113. (1) Correct: I < Br < F < Cl

114. (3) Pyramidal Shape

115. (2)

$$E_{Cell} = E^0_{cell} - \frac{0.0591}{n_2} \log \frac{1}{[cu+2]}$$

$$= 0.34 + \frac{0.0501}{2} \log 0.01 = 0.281V$$

116. (1)

For ccp, No of Z = 4, No of O atoms.

No. of Octahechol voids = 4

No of tebahechol void = 8

No of $Al^{+3} = 4^m$

No of $Mg^{+2} = 8$ Formula = $Mg_{8n}\ Al_{4m}O_4$

$8n(+2) + 4m(+3) + 4(-2) = 0$

$3m + 4n = 2$

$m = ½, n = 1/8$

117. (3)

$A_2 + B_2 \rightleftharpoons 2\ AB$

$$K_C = \frac{[AB]^2}{[A_1][B_2]} = 0.62$$

118. (4) 0.25 gm = 250 mgm

119. (4)

0 + 5 +3 -3

$Al + NaNo_3 + OH^- \rightarrow NaAlo_2 + NH_3$

$Al \rightarrow Al^{+3} = 3e$

+5 -3

$NO^{3-} \rightarrow NH_3 = 8e \quad 8Al = 3NaNO_3$

120. (3) i = 58.5/31.5 = 1.85

$$\alpha = \frac{1.85 - 1}{2 - 1} \times 100 = 85\%$$

121. (2) 1 cc → 1.178

1000 cc → 1170 g

Propriety = 1170/365 = 32.05

122. (4) rate = $K\ [A]^2\ [B]^3$

rate = $K[2A]^2\ [B]^3 = 32K[A]^2\ [B]^3$

123. (4)

124. (2) Cr^{+3} in the complex has unpaired electrons in d-oslipal, hence will be coloured.

125. (1)

126. (3)

127. (3)

128. (3)

129. (2)

130. (2)

131. (2) $(NH_4)\ So_4$, $FeSO_4$, $6H_2O$ = 5 ions

132. (2)

133. (3) It results in formation of more stable aromatic compound which is benzene.

134. (2)

135. (2) $H_2SO_4 + NO + NO_2 \rightarrow NOHSO_4$

Nitrated Sulphuric acid

PHYSICS:

136. (3) $\frac{v_1}{v_2} = \frac{w_1 r_1}{w_2 r_2} = \frac{r_1}{r_2} (by question, w_1 = w_2)$

137. (1) Component of $\vec{A}$ on $\vec{B}$

$= \frac{\vec{A}.\vec{B}}{|\vec{B}|} = \frac{2+3}{\sqrt{2}} = \frac{5}{\sqrt{2}}$

138. (4) Gravitational field on a mass *m* due to outer shell (radius r_2) will be zero because the mass is placed inside this shell. But the inner shell (radius r_1) behaves like point mass placed at the centre so $I = \frac{GM_1}{r^2}$ for $r_1 < r < r_2$

139. (1)

Magnetic field, $B = H_E = 0.8\ \text{G} = 0.8 \times 10^{-4}\ \text{T}$

Induced emf across the ends of a spoke,

$\varepsilon = B\pi R^2 \upsilon = 0.8 \times 10^{-4} \times 3.14 \times (0.7)^2 \times 2 = 2.46 \times 10^{-4}\ \text{V}$

140. (3) $X_c = \frac{1}{\omega C} = \frac{1}{2\pi f}$

141. (2) Conservation of angular momentum

142. (4) $\frac{100-\theta}{R_1} = \frac{\theta - 25}{R_2} \rightarrow \frac{100-\theta}{\frac{1}{K_1}\frac{l}{A}} = \frac{\theta-25}{\frac{1}{K_2}\frac{l}{A}}$

$\therefore K_1(100-\theta) = K_2(\theta - 25) \rightarrow 2(100-\theta) = 3(\theta - 25)$

$\Rightarrow 5\theta = 275 \therefore \theta = 55\ ^{\circ}\text{C}$

143. (1) $B = \mu_0 \frac{N}{L} i$

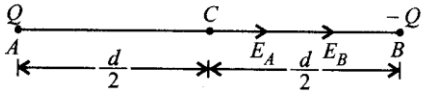
$\Rightarrow B \propto \frac{N}{L} \Rightarrow \frac{B_1}{B_2} = \frac{N_1}{N_2} \times \frac{L_2}{L_1} = \frac{N}{4N} \times \frac{2l}{L} = \frac{1}{2}.$

144. (3)

145. (3) In the given condition source and listener are at the same position *i.e.* (car) for given condition

$n' = n\frac{v + v_{car}}{v - v_{car}} = 124\frac{330+20}{330-20} = 140$

146. (1) $T = \frac{n_1 T_1 + n_2 T_2}{n_1 + n_2}$ (T in Kelvin)



The magnitude of electric field due to charge at the point *A* is $E_A = |\vec{E}| = \frac{1}{4\pi\varepsilon_0}\frac{Q}{\left(\frac{d}{2}\right)^2} = \frac{1}{4\pi\varepsilon_0}\frac{4Q}{d^2}$

The magnitude of electric field due to charge at the point *B* is $E_B = |\vec{E}| = \frac{1}{4\pi\varepsilon_0}\frac{Q}{\left(\frac{d}{2}\right)^2}$

147. (1) $\frac{y}{D} = \frac{\lambda}{d} \rightarrow d = \frac{\lambda D}{y}$

148. (2)

149. (2) When Ice floating, mass of liquid displaced = mass of ice floating $\therefore xA\rho_l = m \rightarrow x = \frac{m}{A\rho_l}$

(x= rise in level)

When ice melts completely, volume of water $= \frac{m}{\rho_{ice} \rightarrow \rho_{water}} = \frac{m}{1} = m$, Rise in level $yA = m \rightarrow y = \frac{m}{A}$. Obviously *y* > *x*, *so* level of liquid rises.

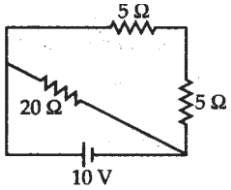
150. (2) $n = \frac{v}{\lambda} = \frac{1}{\lambda}\sqrt{\frac{T}{m}} \alpha \sqrt{T}$

151. (2)

$$n = \frac{v}{\lambda} = \frac{1}{\lambda}\sqrt{\frac{\gamma RT}{M}} \rightarrow n \propto \sqrt{T} \rightarrow \frac{dn}{n} = \frac{1}{2}\frac{dT}{T}$$

$$\therefore \frac{n_b}{300} = \frac{1}{2}\frac{4}{300} \rightarrow n_b = 2$$

152. (3)



$$R_{eq} = \frac{(5\,\Omega + 5\,\Omega) \times 20\,\Omega}{(5\,\Omega + 5\,\Omega) + 20\,\Omega} = \frac{20}{3}\,\Omega$$

The current through the battery is $I = \frac{10\text{ V}}{\frac{20}{3}\,\Omega} = 1.5\text{ A}$

153. (4)

154. (4) Power Radiated P = $\sigma AT^4 = \sigma(4\pi R^2)T^4$

$$\frac{P_2}{P_1} = \frac{R_2^2 T_2^4}{R_1^2 T_1^4} = 4$$

155. (2)

156. (4)

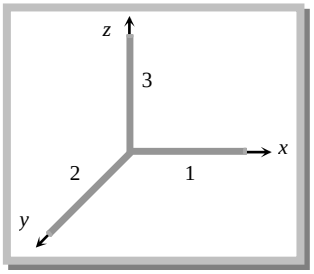
157. (4) For destructive interference, path difference the waves meeting at *P* (*i.e.* $S_1P - S_2P$) must be odd multiple of $\lambda/2$. Hence option (4) is correct.

158. (1) Moment of inertia of the system about *z*-axis can be find out by calculating the moment of inertia of individual rod about *z*-axis

$I_1 = I_2 = \frac{ML^2}{3}$ about Z-axis.

And $I_3 = 0$

$$I_{system} = I_1 + I_2 + I_3 = \frac{2ML^2}{3}$$



159. (1)

By using $\lambda = \frac{h}{mv} \Rightarrow \lambda = \frac{\lambda}{1 \times 1} = h.$

160. (3)

$$\sin C = \frac{\mu_2}{\mu_1} = \frac{\lambda_1}{\lambda_2} = \frac{3500}{7000} = \frac{1}{2} \Rightarrow C = 30^o$$

161. (4)

162. (1)

Root means square velocity

$v_{rms} = \sqrt{\frac{3RT}{M}} = 1930\ m/s$ (given)

$$\therefore M = \frac{3RT}{(1930)^2} = \frac{3 \times 8.31 \times 300}{1930 \times 1930} = 2 \times 10^{-3}\ kg = 2\ gm$$

i.e. the gas is hydrogen.

163. (1) By using $S_n = u + \frac{a}{2}(2n-1)$, Distance travelled by body *A* in 5th second = $0 + \frac{a_1}{2}(2 \times 5 - 1)$ Distance travelled by body B in 3rd second is = $0 + \frac{a_2}{2}(2 \times 3 - 1)$

According to problem :

$$0 + \frac{a_1}{2}(2 \times 5 - 1) = 0 + \frac{a_2}{2}(2 \times 3 - 1)$$

$$\Rightarrow 9a_1 = 5a_2 \Rightarrow \frac{a_1}{a_2} = \frac{5}{9}$$

164. (3) By using $\lambda_0 = \frac{12375}{W_0(eV)}$

$$\Rightarrow \lambda_0 = \frac{12375}{4} = 3093.7\ \text{Å} \simeq 310\ nm$$

165. (1) Isobaric Process (From Graph)

$$\frac{\Delta W}{\Delta Q} = 1 - \frac{1}{\gamma}$$

166. (2) By using $r = \left(\frac{l_1 - l_2}{l_2}\right) R'$

$\Rightarrow r = \left(\frac{l_1 - 2}{2}\right) \times 5$ …… (i)

and

$r = \left(\frac{l_1 - 3}{3}\right) \times 10$ ……. (ii)

On solving (i) and (ii) $r = 10\ \Omega$

167. (1) Given that $m_\infty = 8$ and $L_\infty = 54$

By using $|m_\infty| = \frac{f_o}{f_e}$ and $L_\infty = f_o + f_e$

we get $f_o = 6\,cm$ and $f_e = 48\,cm$.

168. (2) $R.I = R.D \rightarrow \frac{l}{L} = \frac{\rho_S}{\rho_m} \rightarrow 1 - \frac{l}{L} = 1 - \frac{\rho_s}{\rho_m}$

169. (3)

170. (2) When water is cooled at 0^oC to form ice then 80 *calorie*/*gm* (latent heat) energy is released. Because potential energy of the molecules decreases. Mass will remain constant in the process of freezing of water.

171. (3) From the law of conservation of energy

Difference in potential energy between ground and maximum height = Kinetic energy at the point of projection

$$\frac{mgh}{1 + h/R} = \frac{1}{2} m(kv_e)^2 = \frac{1}{2} mk^2 v_e^2$$

$$= \frac{1}{2} m k^2 (\sqrt{2g}R)^2 \quad [\text{As } v_e = \sqrt{2gR}\ ]$$

Height from surface $\mathrm{h} = \dfrac{\mathrm{Rk}^2}{1 - \mathrm{k}^2}$

$$\mathrm{r} = \mathrm{R} + \mathrm{h} = \mathrm{R} + \frac{\mathrm{Rk}^2}{1 - \mathrm{k}^2} = \frac{\mathrm{R}}{1 - \mathrm{k}^2}$$

.

172. (3)

Using $\frac{1}{\lambda} = RZ^2 \left(\frac{1}{n_1^2} - \frac{1}{n_2^2}\right)$

$\Rightarrow \lambda \propto \frac{1}{Z^2}$

$\Rightarrow \lambda_{Li} : \lambda_{He^+} : \lambda_H = \frac{1}{9} : \frac{1}{4} : \frac{1}{1} = 4 : 9 : 36$

173. (4)

174. (2)

175. (1) Excess pressure inside a soap bubble

$$\Delta P = \frac{4T}{r} \Rightarrow \frac{\Delta P_1}{\Delta P_2} = \frac{r_2}{r_1} = 1 : 4$$

176. (1) Relative error in measurement of length is minimum, so this measurement is most accurate.

177. (1) Particle flies off the surface at a point when

$$\frac{h}{R} = \cos\theta = \frac{2}{3} \rightarrow h = \frac{2R}{3}$$

178. (3) $R = n^{\frac{1}{3}} r \rightarrow C = 8^{1/3} c$

179. (2) Car does not topple over if

$$\frac{mu^2}{r} \le mg\tan\theta \rightarrow \tan\theta = \frac{u^2}{rg} = \frac{10^2}{20 \times 10} = \frac{1}{2}$$

Car does not skid up if

$$\frac{mv^2}{r} \le mg\tan(\theta + \lambda) \rightarrow \mathrm{v}_{\max}^2 = rg\frac{\tan\theta + \mu}{1 - \mu\tan\theta}$$

Solving, V=15 m

180. (4) $x = a\sin wt \rightarrow \sin wt = \frac{1}{2} \rightarrow wt = \frac{\pi}{6}$

$$\therefore \frac{2\pi}{T} t = \frac{\pi}{6} \rightarrow t = \frac{T}{12}$$