Aakash
Medical | IIT-JEE | Foundations
(Divisions of Aakash Educational Services Pvt. Ltd.)
Regd. Office : Aakash Tower, 8, Pusa Road, New Delhi-110005
Ph.: 011-47623456

MOCK TEST PAPER

(for AIIMS Entrance Exam.-2018)

ANSWERS

1.	(1)	41.	(3)	81.	(2)	121.	(1)	161.	(1)
2.	(4)	42.	(4)	82.	(1)	122.	(3)	162.	(2)
3.	(4)	43.	(1)	83.	(4)	123.	(1)	163.	(3)
4.	(3)	44.	(3)	84.	(2)	124.	(4)	164.	(1)
5.	(4)	45.	(2)	85.	(4)	125.	(2)	165.	(3)
6.	(3)	46.	(4)	86.	(2)	126.	(4)	166.	(4)
7.	(4)	47.	(2)	87.	(2)	127.	(2)	167.	(1)
8.	(4)	48.	(1)	88.	(4)	128.	(2)	168.	(1)
9.	(2)	49.	(3)	89.	(4)	129.	(4)	169.	(1)
10.	(3)	50.	(4)	90.	(1)	130.	(3)	170.	(3)
11.	(2)	51.	(4)	91.	(4)	131.	(1)	171.	(1)
12.	(4)	52.	(1)	92.	(2)	132.	(2)	172.	(1)
13.	(3)	53.	(4)	93.	(1)	133.	(1)	173.	(2)
14.	(2)	54.	(4)	94.	(3)	134.	(1)	174.	(1)
15.	(2)	55.	(1)	95.	(2)	135.	(2)	175.	(3)
16.	(3)	56.	(4)	96.	(1)	136.	(3)	176.	(2)
17.	(2)	57.	(3)	97.	(3)	137.	(4)	177.	(3)
18.	(1)	58.	(2)	98.	(1)	138.	(4)	178.	(1)
19.	(2)	59.	(1)	99.	(2)	139.	(3)	179.	(3)
20.	(4)	60.	(2)	100.	(4)	140.	(2)	180.	(1)
21.	(4)	61.	(2)	101.	(1)	141.	(3)	181.	(3)
22.	(3)	62.	(2)	102.	(4)	142.	(3)	182.	(4)
23.	(1)	63.	(2)	103.	(3)	143.	(4)	183.	(4)
24.	(1)	64.	(4)	104.	(2)	144.	(2)	184.	(4)
25.	(2)	65.	(2)	105.	(1)	145.	(1)	185.	(2)
26.	(4)	66.	(3)	106.	(2)	146.	(3)	186.	(2)
27.	(3)	67.	(3)	107.	(1)	147.	(4)	187.	(1)
28.	(2)	68.	(4)	108.	(2)	148.	(1)	188.	(2)
29.	(4)	69.	(2)	109.	(1)	149.	(3)	189.	(1)
30.	(1)	70.	(4)	110.	(3)	150.	(3)	190.	(1)
31.	(2)	71.	(4)	111.	(4)	151.	(2)	191.	(1)
32.	(4)	72.	(1)	112.	(1)	152.	(1)	192.	(2)
33.	(2)	73.	(2)	113.	(4)	153.	(1)	193.	(1)
34.	(3)	74.	(2)	114.	(4)	154.	(2)	194.	(2)
35.	(3)	75.	(4)	115.	(1)	155.	(1)	195.	(2)
36.	(3)	76.	(2)	116.	(4)	156.	(4)	196.	(3)
37.	(2)	77.	(4)	117.	(4)	157.	(4)	197.	(4)
38.	(2)	78.	(3)	118.	(1)	158.	(2)	198.	(1)
39.	(4)	79.	(1)	119.	(4)	159.	(1)	199.	(3)
40.	(4)	80.	(3)	120.	(4)	160.	(4)	200.	(4)

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HINTS AND SOLUTIONS

PHYSICS

1. Answer (1)
2. Answer (4)
3. Answer (4)
4. Answer (3)
5. Answer (4)

$F = \dot{m}v = (DAv)\,(2v\cos\theta) = 2DAv^2\cos\theta.$

6. Answer (3)

$$\frac{u\sin 60^\circ}{10} = \sqrt{\frac{160}{10}}$$

$$u = \frac{80}{\sqrt{3}}\text{m/s}$$

7. Answer (4)
8. Answer (4)
9. Answer (2)
10. Answer (3)
11. Answer (2)

$$\frac{1}{2}mk^2\,\frac{2GM}{R} - \frac{GMm}{R} = \frac{-GMm}{r}$$

$$\therefore \quad r = \frac{R}{1-k^2}$$

12. Answer (4)
13. Answer (3)

$$B = x\left(1-\frac{N_1}{N_2}\right)$$

$$\therefore \quad x = \frac{BN_2}{N_2 - N_1}$$

14. Answer (2)
15. Answer (2)
16. Answer (3)
17. Answer (2)
18. Answer (1)

$$L_1 - L_2 = 10\log\frac{I}{\left(\frac{I}{4}\right)}$$

$$40 - L_2 = 10\log 4$$

$$40 - L_2 = 20\log 2$$

$L_2 = 40 - 6 = 34$ dB

19. Answer (2)

$$I = \frac{I_0}{2}\cos^2 30^\circ$$

$$I = \frac{3I_0}{8}$$

$$\frac{I}{I_0}\times 100 = \frac{300}{8} = 37.5\%$$

20. Answer (4)

$$\frac{hc}{\lambda_{\text{Min}}} = \frac{h^2}{2m\lambda^2}$$

$$\lambda_{\text{Min}} = \frac{2mc\lambda^2}{h}$$

21. Answer (4)

22. Answer (3)

$Bt = mg(t + x)$

$$\therefore \quad x = \left(\frac{B}{mg} - 1\right)t = \left(\frac{D_2 Vg}{D_1 Vg} - 1\right)t = \left(\frac{D_2}{D_1} - 1\right)t$$

23. Answer (1)

24. Answer (1)

$$\frac{1}{v} - \frac{1}{u} = \frac{1}{f}$$

$$\frac{1}{v} - \frac{1}{15} = \frac{1}{30} \qquad \therefore \quad v = 10 \text{ cm}$$

$\therefore$ Shift = 15 – 10 = 5 cm

25. Answer (2)

$$\int_{x=0}^{R} \frac{\mu 2\pi x dx.Mg.x}{\pi R^2} = \frac{2\mu MgR}{3}$$

26. Answer (4)

$$B_R = \sqrt{B^2 + (2B)^2} = \sqrt{5}B$$

27. Answer (3)

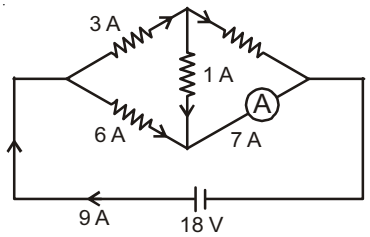
28. Answer (2)

$f_{\text{Monoatomic}} < f_{\text{Diatomic}} < f_{\text{Polyatomic}}$

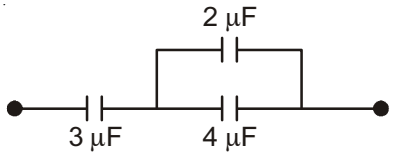
$\gamma_{\text{Monoatomic}} > \gamma_{\text{Diatomic}} > \gamma_{\text{Polyatomic}}$

$\text{Slope}_{\text{Monoatomic}} > \text{Slope}_{\text{Diatomic}} > \text{Slope}_{\text{Polyatomic}}$

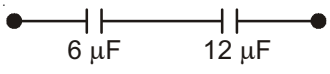
29. Answer (4)



30. Answer (1)



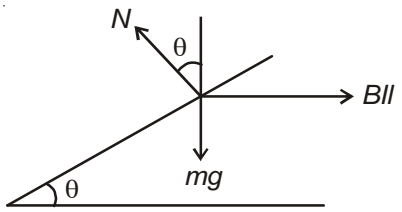
$$18 \times \frac{3}{3+6} = 6 \text{ V}$$



$$6 \times \frac{6}{18} = 2 \text{ V}$$

31. Answer (2)

32. Answer (4)



$N \sin \theta = BIl$

$N \cos \theta = mg$

$BIl = mg \tan \theta$

$$I = \frac{mg \tan\theta}{Bl} = \frac{\lambda g \tan\theta}{B}$$

33. Answer (2)

$$T = 2\pi\sqrt{\frac{I}{B_H M}}$$

$$T' = 2\pi\sqrt{\frac{I}{B_H/\cos\theta\, M}}$$

$B_H = B \cos \theta$

$$\frac{T}{T'} = \frac{1}{\sqrt{\cos 60°}} \Rightarrow T' = T\sqrt{\cos 60°}.$$

34. Answer (3)

$$I_C \simeq \frac{q}{100} I_E$$

$$I_B \simeq \frac{q}{100} I_E$$

35. Answer (3)

36. Answer (3)

$$3 = \frac{12400}{\lambda} - \frac{12400}{5000}$$

$\lambda \approx 2262$ Å

37. Answer (2)

38. Answer (2)

39. Answer (4)

40. Answer (4)

41. Answer (3)

42. Answer (4)

43. Answer (1)

44. Answer (3)

45. Answer (2)
46. Answer (4)
47. Answer (2)
48. Answer (1)
49. Answer (3)
50. Answer (4)
51. Answer (4)
52. Answer (1)
53. Answer (4)
54. Answer (4)
55. Answer (1)
56. Answer (4)
57. Answer (3)
58. Answer (2)
59. Answer (1)
60. Answer (2)

CHEMISTRY

61. Answer (2)
62. Answer (2)

$XeF_4 \rightarrow$ Square planar, sp^3d^2

$[PtCl_4]^{2-} \rightarrow$ Square planar, dsp^2

63. Answer (2)

Thermal decomposition of a gas over the surface of a metal follows zero order kinetics.

64. Answer (4)

I is antiaromatic

II is aromatic

III is non-aromatic

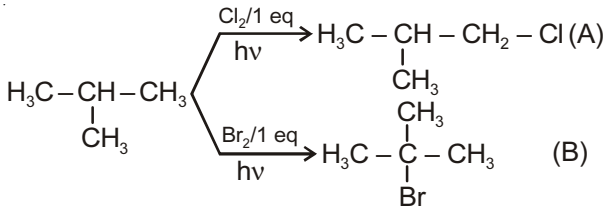
65. Answer (2)

Its enol form is phenol which is highly resonance stabilised aromatic compound.

66. Answer (3)

Due to steric inhibition, the electron withdrawing tendency of $-NO_2$ decreases.

67. Answer (3)
68. Answer (4)



69. Answer (2)
70. Answer (4)

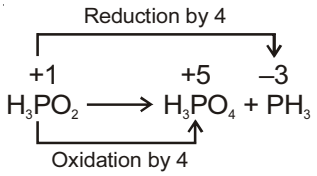
$$R-CH_2-OH \xrightarrow[H_2SO_4]{CrO_3} R-COOH \xrightarrow{CH_3MgBr} CH_4$$

$$\xrightarrow{Cu/\text{high T}} CH_3OH$$

71. Answer (4)
72. Answer (1)

In $[Cu(NH_3)_4]^{2+}$, Cu has dsp^2 hybridization.

73. Answer (2)



$$n_{factor} = \frac{n_1 \times n_2}{n_1 + n_2} = \frac{4 \times 4}{4+4} = \frac{16}{8} = 2$$

$n_{factor} = 2$

74. Answer (2)

$$P_B = \frac{5}{5+3} \times 16 = 10 \text{ atm} \quad \therefore \text{ 10 atm.}$$

75. Answer (4)

i = 1 for $C_6H_{12}O_6$

76. Answer (2)

All have same bond order with same number of electron.

77. Answer (4)

$$A = 4 \times \frac{1}{8} + \frac{1}{2} \times 4 = \frac{5}{2}$$

$$B = 10 \times \frac{1}{4} = \frac{5}{2} \quad \therefore \text{ AB}$$

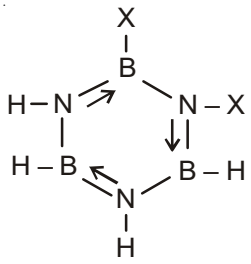
78. Answer (3)
79. Answer (1)
80. Answer (3)

$Hg_2Cl_2 \rightleftharpoons Hg_2^{2\oplus} + 2Cl^-$

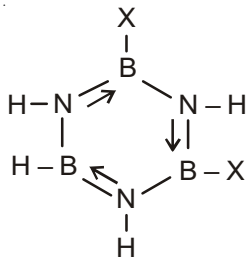
$K_{sp} = 4S^3$

$S = 2 \times 10^{-6}$ M

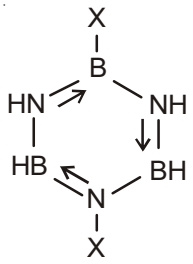
81. Answer (2)



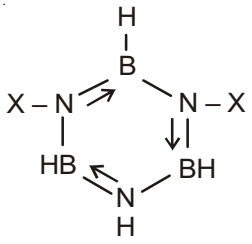
(I)



(II)



(III)



(IV)

82. Answer (1)

83. Answer (4)

Balanced equation is

$KIO_3 + 5KI + 6HCl \rightarrow 3I_2 + 6KCl + 3H_2O$

$\therefore \quad \frac{1+5+6}{3+6+3} = \frac{12}{12} = 1$

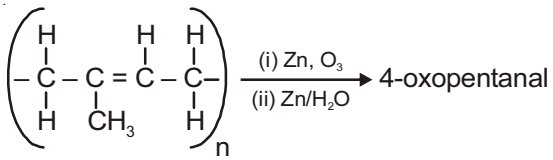
84. Answer (2)

$NH_4NO_3 \xrightarrow{\Delta} N_2O + 2H_2O$

85. Answer (4)

86. Answer (2)

87. Answer (2)



88. Answer (4)

$$\text{ratio} = \frac{(e/m)\alpha}{(e/m)\beta} = \frac{1.6\times10^{-19}\times2/4\times1.67\times10^{-27}}{1.6\times10^{-19}/9.1\times10^{-31}}$$

$= 2.72 \times 10^{-4}$

89. Answer (4)

$\Delta S_{mix} = -2.303R[n_1\log\chi_1 + n_2\log\chi_2]$

$\Delta G_{mix} = \Delta H_{mix} - 2.303RT[n_1\log\chi_1 + n_2\log\chi_2]$

$$= 0 - 2.303 \times 8.314 \times 300\left[5\log\frac{1}{3} + 10\log\frac{2}{3}\right]$$

$= -23.78$ kJ

90. Answer (1)

$NaOH + CH_3COOH \longrightarrow CH_3COONa + H_2O$

x	5	0	0
0	5 – x	x	x

$$pH = pK_a + \log\frac{(Salt)}{(Acid)} \Rightarrow 5.44 = 4.74 + \log\frac{x}{5-x}$$

$$\Rightarrow 0.7 = \log\frac{x}{5-x}$$

$$\Rightarrow 5 = \frac{x}{5-x}$$

$$\Rightarrow x = \frac{25}{6} = 4.16$$

91. Answer (4)

$H_2S_2O_8 + H_2O \longrightarrow H_2SO_5 + H_2SO_4$

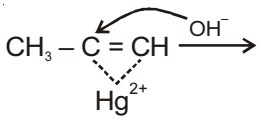
$H_2SO_5 + H_2O \longrightarrow H_2SO_4 + H_2O_2$

92. Answer (2)

$Al_4C_3 + H_2O \longrightarrow CH_4 + Al(OH)_3$

93. Answer (1)

94. Answer (3)



95. Answer (2)

$$\Delta H = nF\left[T\left(\frac{dE}{dT}\right) - E\right]$$

$$\Rightarrow \quad \Delta H = 2\times96500[300\times0.1-5] = 4825 \text{ kJ}$$

96. Answer (1)

Ag_2S is concentrated by leaching.

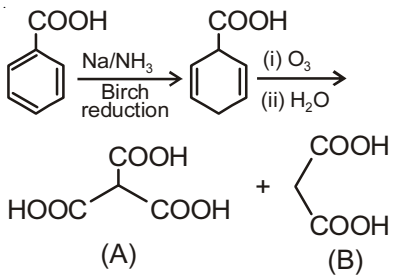
97. Answer (3)

Fact.

98. Answer (1)

F^- is better leaving group than Cl^- in case of ArS_N1.

99. Answer (2)



(A) (B)

100. Answer (4)

Most stable carbanion will form at (d).

101. Answer (1)

Fact

102. Answer (4)

Cyclooctatetraene is a non-aromatic compound due to non-planar structure. It contains $4n\pi$ electrons.

103. Answer (3)

Due to high bond dissociation energy its rate of reactions in the body is comparatively slow.

104. Answer (2)

105. Answer (1)

106. Answer (2)

107. Answer (1)

108. Answer (2)

109. Answer (1)

110. Answer (3)

111. Answer (4)

112. Answer (1)

113. Answer (4)

114. Answer (4)

Second is more stable due to resonance.

115. Answer (1)

Zn can replace Ag^+.

116. Answer (4)

K_b is solvent dependent.

117. Answer (4)

In pyridine, lone pair on N-atom are not involved in resonance.

118. Answer (1)

Due to partial double bond character.

119. Answer (4)

If R is $(CH_3)_3C-$, benzoic acid will not form.

120. Answer (4)

Fact.

BIOLOGY

121. Answer (1)

122. Answer (3)

123. Answer (1)

When a cell is flaccid, water flows into the cell and out of the cell and are in equilibrium.

124. Answer (4)

RNA has ribose and uracil hence less stable.

125. Answer (2)

Through plastoquinone

126. Answer (4)

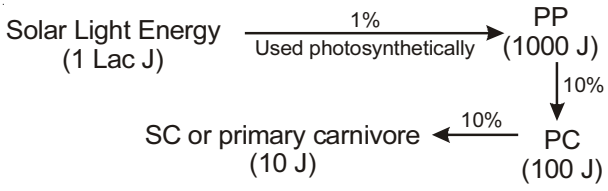
Substrate level phosphorylation.

127. Answer (2)

a - true for eukaryotes

128. Answer (2)

One percent of incident solar light energy is used by producers and 10% energy becomes available for higher trophic level.



129. Answer (4)

Biomagnification of DDT

130. Answer (3)

131. Answer (1)

Such population interaction is competition.

132. Answer (2)

133. Answer (1)

Tall plant with round seeds (TtRr) × Tall plant with wrinkled seeds (Ttrr)

	TR	Tr	tR	tr
Tr	TTRr	TTrr	TtRr	Ttrr
tr	TtRr	Ttrr	ttRr	ttrr

Tall and wrinkled = $\frac{3}{8}$

134. Answer (1)

135. Answer (2)

One molecule of glycolate can form one molecule of glycine. Two molecules of glycine can form one molecule of CO_2 and one of serine.

136. Answer (3)

137. Answer (4)

138. Answer (4)

Riccia, *Funaria, Marchantia*

139. Answer (3)

140. Answer (2)

141. Answer (3)

Occipital bone has foramen magnum. Patella is formed by ossification of tendon of quadriceps extensor muscle.

142. Answer (3)

Nucleotidase, aminopeptidase – Intestinal juice

Pepsin – Gastric juice

143. Answer (4)

144. Answer (2)

t-PA is tissue plasminogen activator.

OKT3 is an immunosuppressant drug.

Asparaginase – Chemotherapeutic agent in treatment of acute lymphoblastic leukemia

α-1-antitrypsin – Used to treat emphysema

145. Answer (1)

Blockage of coronary artery destroys cardiac muscles rapidly because constantly beating heart muscles cannot survive long without oxygen.

146. Answer (3)

147. Answer (4)

Nereis is aquatic, dioecious and have parapodia and closed circulatory system.

148. Answer (1)

Rabbit produces Angoora wool.

149. Answer (3)

Cervical mucus is thickened to prevent the passage and transport of sperms.

150. Answer (3)

LH and GnRH have no effect on the production of adrenal androgens. RAAS is Renin angiotensin Aldosterone system.

151. Answer (2)

It transfers nucleotides to the growing DNA.

152. Answer (1)

Filtration is a non-selective process.

153. Answer (1)

154. Answer (2)

FSH and LH are given for follicular maturation and ovulation.

155. Answer (1)

156. Answer (4)

157. Answer (4)

In the neck of camel and giraffe there are seven cervical vertebrae but the neck is long because the intervertebral disc is of large size.

158. Answer (2)

Nucleotide is made up of pentose sugar, nitrogenous base and phosphate.

159. Answer (1)

160. Answer (4)

161. Answer (1)

Spores in slime mould possess true wall.

162. Answer (2)

163. Answer (3)

164. Answer (1)

165. Answer (3)

Castor – endospermic dicot seed.

166. Answer (4)

During apoplast movement, the movement of water is faster.

167. Answer (1)

168. Answer (1)

169. Answer (1)

170. Answer (3)

171. Answer (1)

172. Answer (1)

173. Answer (2)

174. Answer (1)

Heterozygotes pass on both sickle cell and normal alleles to the next generation. Thus, neither allele can be eliminated from the gene pool.

Balancing selection can arise by the heterozygotes having a selective advantage as in case of sickle cell anemia.

175. Answer (3)

Biting and chewing type of mouth parts occur in cockroach

176. Answer (2)

177. Answer (3)

The stromal cells of testes secreting androgens are leydig cells which are stimulated by LH.

178. Answer (1)

179. Answer (3)

For sessile animals, radial symmetry is advantageous as it allows food to be gathered from all sides.

180. Answer (1)

GENERAL KNOWLEDGE AND APTITUDE & LOGICAL THINKING

181. Answer (3)
182. Answer (4)
183. Answer (4)
184. Answer (4)
185. Answer (2)
186. Answer (2)
187. Answer (1)
188. Answer (2)
189. Answer (1)
190. Answer (1)
191. Answer (1)
192. Answer (2)
193. Answer (1)
194. Answer (2)
195. Answer (2)
196. Answer (3)

1	D	
2	A	K
3	S/J	
4	P	J/S

1	S/J	
2	A	K
3	D	
4	P	J/S

	J/S
S/J	P
D	
A	K

D	
S/J	P
	J/S
A	K

197. Answer (4)
198. Answer (1)
199. Answer (3)
200. Answer (4)

❑ ❑ ❑