

PACE-IIT & MEDICAL

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MOCK TEST - 14 - (NEET 2018 Aspirants) - Solutions

①
$$I = \frac{1}{3} \frac{M}{2} \left(\frac{L}{2} \cdot \frac{1}{2} \right)^2 + \frac{1}{3} \frac{M}{2} \cdot \left(\frac{L}{2} \cdot \frac{1}{2} \right)^2$$

$$= \frac{ML^2}{12} \quad (\text{moment of inertia won't change after bending})$$

③
$$\Delta P = (760 - 750) \text{ mm of Hg}$$

$$= 10 \text{ mm of Hg}$$

$$(pgh)_w = (pgh)_m$$

$$\Rightarrow h = 13.6 \text{ cm}$$

④
$$E = \frac{\sigma}{\epsilon_0}$$

⑤
$$\frac{1}{v} - \frac{1}{u} = \frac{1}{f} \Rightarrow \frac{1}{6} - \frac{1}{-8} = \frac{1}{10}$$

$$m = \frac{v}{u}$$

⑫ if $r < a$ $B \propto r$
 $r \geq a$ $B \propto \frac{1}{r^2}$

⑬ for a particular value of time velocity will have a unique value.

⑭ if magnetic field is increasing along x-dirⁿ, equipotential surface will be perpendicular to it.

$$(15) \quad q \propto B = \frac{mv^2}{r}$$

$$(16) \quad \text{Compressibility} = \frac{1}{B}$$

$$B = -\frac{V \Delta P}{\Delta V}$$

$$(17) \quad H = \frac{kA \Delta \theta}{l}$$

→ rate of Heat flow will depend on temp. diff not absolute temp.

(18) from Bernoulli's

$$P_1 + \frac{1}{2} \rho V_1^2 = P_2 + \frac{1}{2} \rho V_2^2$$

$$V_1 = 0, \quad V_2 = 40 \text{ m/sec}$$

$$\Rightarrow P_1 - P_2 = 960 \text{ N/m}^2$$

$$F = \Delta P \cdot A$$

$$(19) \quad (\Delta U)_{ABC} = (\Delta U)_{AC}$$

$$Q = W + \Delta U$$

$$W_{ABC} = W_{AC} + \text{area of cycle}$$

20) $\eta = \frac{\phi_1 - \phi_2}{\phi_1}$ $\phi_1 = \phi_2 + W$

$\eta = \frac{W}{W + \phi_2}$

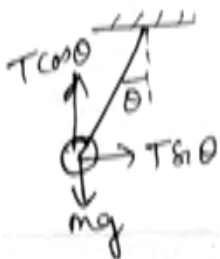
$\Rightarrow \frac{1}{10} = \frac{10}{10 + \phi_2}$

22) 4 beats/s with a source of freq. 250.

hence $f = 246$ or 254

$4 \Rightarrow 513 - 2(254) = 5$ beats/sec

23)



$T \cos \theta = mg$

$T \sin \theta = \frac{kq^2}{r^2}$

$\Rightarrow \tan \theta = \frac{kq^2}{r^2 mg}$

from diagram

$\tan \theta = \frac{r/2}{y}$

$\Rightarrow r' = \frac{r}{(2)^{1/3}}$

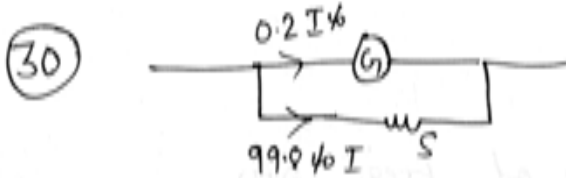
25) $R = \frac{\rho l}{A}$

26) $\frac{5}{l_1} = \frac{R}{100 - l_1}$

Now, by shunting resistance R by equal resistance R, new resistance becomes $R/2$.

$\frac{5}{1.6 l_1} = \frac{R/2}{100 - 1.6 l_1} \Rightarrow R = 15 \Omega$

$$\begin{aligned} \text{(28)} \quad r &= \frac{l_1 - l_2}{l_2} \cdot R \\ &= \left(\frac{3 - 2.85}{2.85} \right) \cdot (9.5) = 0.5 \Omega \end{aligned}$$



$$\frac{G}{S} = \frac{99.8}{0.2}$$

$$\Rightarrow S = \frac{G}{499}$$

$$R_{(A)} = S \parallel R_G$$

$$= \frac{G}{500}$$

$$\text{(31)} \quad s = \int v \cdot dt = \int (At + Bt^2) dt$$

$$\text{(34)} \quad v = \frac{d\vec{r}}{dt}, \quad a = \frac{dv}{dt}, \quad \vec{v} \cdot \vec{r} = 0$$

$$\text{(35)} \quad \frac{mgh}{4} = mL$$

$$\text{(36)} \quad B = \frac{\mu_0}{4\pi} \cdot \frac{2\pi i}{r}$$

$$\text{(38)} \quad s = \frac{1}{2} (g \sin \theta) t^2 \quad \text{--- (1)}$$

$$s = \frac{1}{2} [g \sin \theta - \mu g \cos \theta] n^2 t^2 \quad \text{--- (2)}$$

$$\theta = 45^\circ, \Rightarrow \text{(1)/(2)} \Rightarrow 1 = \frac{1}{(1-\mu)n^2} \Rightarrow \mu = 1 - \frac{1}{n^2}$$

$$(39) \quad \underbrace{m_1 v_1 + m_2 v_2}_{\text{before collision}} = \underbrace{m_1 v_1' + m_2 v_2'}_{\text{after collision}}$$

$$\Rightarrow (200)(3) + (400)u = 0$$

$$u = -0.15 \text{ m/s}$$

$$(41) \quad \text{Static friction} = \mu_s mg$$

$$\Rightarrow mg = 64$$

$$\mu_s mg - \mu_k mg = ma$$

$$\Rightarrow 0.2 mg = ma$$

$$\Rightarrow a = 0.2 g$$

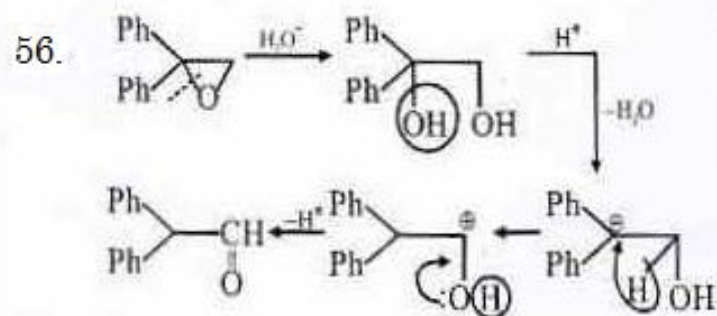
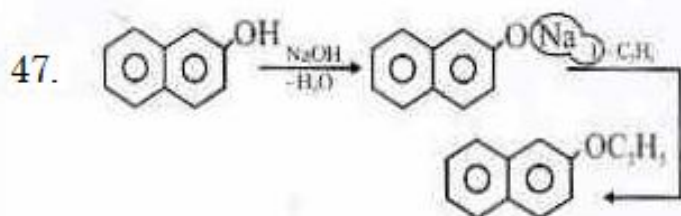
$$(42) \quad \frac{dU}{dx} = 0$$

$$(43) \quad \frac{1}{6} \frac{G M_e}{R_e^2} = \frac{G M_M}{R_M^2}$$

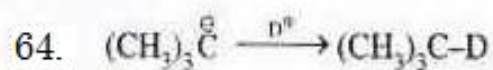
$$(44) \quad \frac{F}{A} = Y \cdot \frac{\Delta l}{l} \quad \Rightarrow \quad \Delta l = \frac{Fl}{AY}$$

$$(45) \quad W = T (A_f - A_i) \cdot 2$$

↓
↑
to
Soap bubble



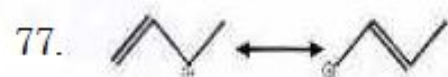
60. Anti-addition



69. Nucleophilicity \propto size (in group)

72. Walden-inversion

73. Hunsdiecker - rxn



87. Relative quantity = $r \times n$
 where r = reactivity of H
 n = no. of H

91. (2) NCERT XI: Pg. no. 13
92. (2) page no. 27 1st Paragraph
93. (2) page no.20, 2.2.1chrysophytes
94. (2) NCERT XI page 32,33
95. (2) NCERT XI page 35
96. (2) Nucleus
97. (3) Involved in photorespiration
98. (4) They include phosphatidylcholine, phosphatidyl ethanol amine and cholesterol, among others
99. (3) When homologous chromosomes separate while their sister chromatids remain associated at the centromere, it is called disjunction.
100. (2) NCERT XI, Pg No. 169
101. (4) NCERT pg no 68
102. (3) NCERT pg no 67
103. (1) Epicalyx is seen in Hibiscus. It is additional whorl of sepal like structure formed by bracteoles.
104. (1) Factional question
105. (1) Factional Question
106. (2) transpiration is very low and absorption is high
107. (2) osmosis
108. (2) Pg. no. 194
109. (2) Pg. no. 202
110. (2) DCMU and CMU inhibit oxygen evolution, they inhibit flow of electrons from PS-II to PS-I.
111. (2) HSC pg no 66
112. (3) NCERT pg no 207
113. (4) page no 230, 14.3, Fermentation
114. (1) page no 232, 14.4.2 ETS
115. (2) page no 231, 14.4 Aerobic respiration
116. (4) absorbs red pfr absorbs far red
117. (1) NCERT XI page 251
118. (3) NCERT XI page 250
119. (1) NCERT XII page 8
120. (1) Fruits
121. (4) Pollens
122. (4) Sterile and Seedless
123. (3) page no 88, 89 ,
124. (4) page no 91 , Down's syndrome
125. (1) page no 76 , 5.2.2.1 Incomplete dominance
126. (3) NCERT XII, Pg. no. 97,102,105,117
127. (2) NCERT XII, Pg. no.117
128. (1) NCERT XII, Pg. no.107
129. (1) NCERT XII page 171
130. (4) NCERT XII page 174
131. (2) NCERT pg no 188
132. (1) NCERT pg no 183
133. (3) It will increase
134. (1) Mortality rate = Birth rate
135. (4)
136. (1) Fugitive species are those which are quicker to exploit any vacant patches in the environment that becomes available, colonizing and reproducing before the more competent species occupies the patch and excludes it.
137. (4) NCERT XII page 262
138. (4) NCERT XII page 263
139. (2) Ozone day –Sept 16
140. (3) NCERT pg no 276

141. (1)
142. (3) It does not have collagen, RBCs perform anaerobic respiration. Blood is neither loose, nor dense; rather it is a specialised connective tissue.
143. (1)
144. (1)
145. (3)
146. (1)
147. (2) Zona pellucida is made of glycoproteins.
148. (1)
149. (2)
150. (3)
151. (1) Pg 48, 2nd para
152. (1) Pg 54, 1st para
153. (1) Rest all have metanephric kidney in the adult stages.
154. (3) Pg 322, fig 21.5
155. (1) In Myopia, Eyes cannot focus on objects placed at far distance and hence can be corrected by using concave lens.
156. (3) Tongue movements is controlled by hypoglossal nerve.
157. (1) Pg 336 1st para
158. (3) pg 332, 337
159. (3) Pg 333, 2nd para
160. (2) Silk is a beta pleated protein which contains central core of fibroin and outer core of sericin.
161. (2)
162. (3)
163. (4)
164. (3) Demographic transition is a state of steady population.
165. (2)
166. (3)
167. (4) Paul Berg is Father of Genetic Engineering
168. (3)
169. (3)
170. (1)
171. (2)
172. (2)
173. (3) Goblet cells are located in the intestinal mucosal epithelium and secrete MUCOUS. Fats are broken down into di- and monoglycerides with the help of LIPASE. Saliva contains enzymes that digest COOKED STARCH.
174. (2)
175. (3)
176. (3) During ejection of blood the atrial pressure and the aortic pressure both are less than that of ventricles.
177. (4)
178. (3) Excessive gastrin will stimulate the oxyntic cells to produce more HCl and hence can cause ulcer.
179. (3)
180. (4)