

高三物理学科答案

命题学校 1: 慈溪中学; 命题学校 2: 浦江中学; 审稿: 东阳中学; 终审: 玉环中学

题号	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
答案	D	C	C	A	C	B	B	D	A	D	B	D	C	AD	CD	BCD

填空题:

17. 1. (1) 1.731---1.733 (1分) (2) 75.2 (1分)

2. (1) $g = \frac{4\pi^2 \left(l_0 + \frac{D}{2} \right) n^2}{t^2}$ (2分)

(2) 1.2 (1分) 9.86 (2分)

18. (1) R_2 (1分) $\left(\frac{I_3}{I_4} - \frac{I_1}{I_2} \right) (R_2 + r_{A1})$ (2分) 相等 (2分)

(2) 1.50 (1分) 1.03 (1分)

解答题:

19. (1) $\frac{V_1}{T_1} = \frac{V_0}{T_0}$ (2分) $T_1 = 450K (t = 177^\circ C)$ (1分)

(2) $W = -P_1 \Delta V = -\left(P_0 + \frac{mg}{S} \right) \Delta V = -0.175J$ (2分)

$\Delta U = Q + W = 19.825J$ (1分)

(3) $\frac{P_2}{T_2} = \frac{P_1}{T_1}$ (1分) $P_2 = P_0 + \frac{(M+m)g}{S}$ (1分)

$M = \frac{497}{90} kg$ (1分)

20. (1) $E_p - \mu_1 m_1 g x = \frac{1}{2} m_1 v_B^2$ $v_C = \frac{v_B}{\cos 60^\circ} = 2m/s$ (1分)

$\frac{1}{2} m_1 v_C^2 + m_1 g R (1 - \cos 60^\circ) = \frac{1}{2} m_1 v_D^2$ $v_D = 4m/s$ (1分)

$F_N - m_1 g = m_1 \frac{v_D^2}{R}$ $F_N = \frac{140}{3} N$ (1分)

$F_N' = F_N = \frac{140}{3} N$ 方向竖直向下 (1分, 牛三没写扣一分, 方向没写扣一分, 两个都没写也扣一分)

(2) $m_1 v_D = (m_1 + m_2) v$ $v = \frac{4}{3} m/s$ (1分)

$$\begin{cases} (m_1 + m_2)v = -m_1v_1 + m_2v_2 \\ \frac{1}{2}m_1v_1^2 = m_1gR(1 - \cos 60^\circ) + \frac{1}{2}m_1v_c^2 \end{cases} \Rightarrow \begin{cases} v_1 = 4m/s \\ v_2 = 4m/s \end{cases} \quad (2 \text{分})$$

$$\Delta E = \frac{1}{2}m_1v_1^2 + \frac{1}{2}m_2v_2^2 - \frac{1}{2}(m_1 + m_2)v^2 = \frac{128}{3}J \quad (1 \text{分})$$

$$(3) -\mu_2 m_2 g s = 0 - \frac{1}{2}m_2 v_2'^2 \quad \mu_2 = 0.4 \quad (1 \text{分})$$

$$\begin{cases} -\mu_2 m_2 g s = \frac{1}{2}m_2 v_2'^2 - \frac{1}{2}m_2 v_2^2 \\ v_2' = v_3 \\ \frac{1}{2}m_3 v_3^2 = m_3 g L \end{cases} \quad \mu_2 = 0.15 \quad (2 \text{分})$$

综上所述, $0.15 \leq \mu_2 < 0.4$ (1分)

$$21. (1) -m_1 g \sin 53^\circ t_1 - B_1 dq = m_1 v_1 - m_1 v_0 \quad q = \frac{B_1 dx_1}{\frac{r}{2} + \frac{r}{2} \parallel R} = 0.4C \quad (1 \text{分})$$

$$v_1 = 4m/s \quad (1 \text{分})$$

$$m_1 v_1 = (m_1 + m_2) v_2 \quad v_2 = 2m/s \quad (1 \text{分})$$

$$U = B_1 L v_2 - \frac{B_1 d v_2}{\frac{r}{2} \parallel \frac{r}{2} + R} \left(\frac{r}{2} \parallel \frac{r}{2} \right) = 2V \quad (1 \text{分})$$

$$(2) Q_1 = \frac{1}{2}m_1 v_0^2 - \frac{1}{2}m_1 v_1^2 - m_1 g \sin 53^\circ x_1 = 8J \quad (1 \text{分})$$

$$-(m_1 + m_2) g \sin 53^\circ x_2 = \frac{1}{2}(m_1 + m_2) v_3^2 - \frac{1}{2}(m_1 + m_2) v_2^2 \quad v_3 = 1m/s$$

$$\begin{cases} -B_2 dq = (m_1 + m_2) v_4 - (m_1 + m_2) v_3 \\ B_2 \frac{d}{3} q = m_3 v_5 \\ B_2 d v_4 = B_2 \frac{d}{3} v_5 \end{cases} \Rightarrow \begin{cases} v_4 = 0.4m/s \\ v_5 = 1.2m/s \end{cases}$$

$$Q_2 = \frac{1}{2}(m_1 + m_2) v_3^2 - \frac{1}{2}(m_1 + m_2) v_4^2 - \frac{1}{2}m_3 v_5^2 = 0.6J \quad (1 \text{分})$$

$$\begin{cases} -B_2 \frac{d}{3} q' = m_3 v_6 - m_3 v_5 \\ q' = \frac{B_2 \frac{d}{3} x_3}{\frac{1}{6} r + \frac{1}{6} \frac{r}{2}} \end{cases} \quad v_6 = 0.6 m/s$$

$$Q_3 = \frac{1}{2} m_3 v_5^2 - \frac{1}{2} m_3 v_6^2 = 0.18 J \quad (1 \text{分})$$

$$Q = Q_1 + Q_2 + Q_3 = 8.78 J \quad (1 \text{分})$$

$$(3) m_3 v_6 = (m_3 + m_4) v_7 \quad \frac{1}{2} (m_3 + m_4) v_7^2 = \frac{1}{2} k A^2 \quad A = 0.2 m \quad T = 2\pi \quad (1 \text{分})$$

$$x = 0.2 \cos t(m) \quad (1 \text{分})$$

$$22. (1) \sin \theta = \frac{R - \frac{1}{3} R}{R + \frac{1}{3} R} = \frac{1}{2} \quad \theta = 30^\circ \quad (1 \text{分})$$

$$q v_0 B = m \frac{v_0^2}{r} \quad r = \frac{m v_0}{q B} = \frac{R}{\tan 15^\circ} \quad (1 \text{分})$$

$$v_0 = 4 \times 10^5 m/s \quad (1 \text{分}) \quad a = \frac{q E}{m} \quad x = 2 \frac{v_0^2}{2a} = 4m \quad (1 \text{分})$$

$$(2) \tan 30^\circ = \frac{\frac{1}{3} R}{\frac{m v_0}{q B_3}} \quad B_3 = (6 + 4\sqrt{3}) T \quad (1 \text{分})$$

$$x = R = (2 - \sqrt{3}) m \quad y = -(R + \frac{2}{3} \sqrt{3} R) = -\frac{\sqrt{3}}{3} m$$

$$\text{位置坐标} \left[(2 - \sqrt{3}) m, -\frac{\sqrt{3}}{3} m \right] \quad (2 \text{分})$$

$$(3) t_{\text{电}} = 2 \frac{v_0}{a} = 2 \times 10^{-5} s \quad (1 \text{分})$$

$$t_{\text{磁}} = \frac{1}{12} T_1 + \frac{1}{12} T_2 + \frac{1}{6} T_3 = \frac{\sqrt{3}\pi}{18} \times 10^{-5} s \quad (1 \text{分})$$

$$t = (2 + \frac{\sqrt{3}\pi}{18}) \times 10^{-5} s \quad (1 \text{分})$$

关于我们

自主选拔在线是致力于提供新高考生涯规划、强基计划、综合评价、三位一体、学科竞赛等政策资讯的升学服务平台。总部坐落于北京，旗下拥有网站（[网址: www.zizzs.com](http://www.zizzs.com)）和微信公众平台等媒体矩阵，用户群体涵盖全国90%以上的重点中学师生及家长，在全国新高考、自主选拔领域首屈一指。

如需第一时间获取相关资讯及备考指南，请关注**自主选拔在线**官方微信号：**zizzsw**。



 微信搜一搜

 自主选拔在线