

2018 年长郡集团“澄池”杯初赛初三物理试卷解析

一、单项选择题

1-5 DCBBB

6-10 BCBCD

11-12 CA

二、填空题

13、大气压 增大

14、液化 汽化

15、减小 增大

16、凸透镜 显微镜

17、50N 50N

18、 $4 \times 10^3 \text{Pa}$ $5 \times 10^3 \text{Pa}$

19、托里拆利 下降

三、计算题

20、(1)铝球排水的质量 $m_{\text{排}} = (180\text{g} + 54\text{g}) - 204\text{g} = 30\text{g}$

$$\text{由 } \rho = \frac{m}{V} \text{ 得 } V_{\text{排}} = \frac{m_{\text{排}}}{\rho_{\text{水}}} = \frac{30\text{g}}{1\text{g/cm}^3} = 30\text{cm}^3, V_{\text{铝}} = V_{\text{排}} = 30\text{cm}^3$$

$$(2) \text{铝球的密度 } \rho_{\text{铝}} = \frac{m_{\text{铝}}}{V_{\text{铝}}} = \frac{54\text{g}}{30\text{cm}^3} = 1.8\text{g/cm}^3 = 1.8 \times 10^3 \text{kg/m}^3$$

$$(3) \text{铝球中实际铝体积 } V_{\text{实}} = \frac{m_{\text{铝}}}{\rho_{\text{铝}}} = \frac{1.2\text{kg}}{4 \times 10^{-4} \text{m}^3} = 20\text{cm}^3$$

$$V_{\text{实}} < V_{\text{铝}} \text{ 铝球是空心的, 空心部分体积 } V_{\text{空}} = 30\text{cm}^3 - 20\text{cm}^3 = 10\text{cm}^3$$

21、(1) $G = mg = 50\text{kg} \times 10\text{N/kg} = 500\text{N}$

$$(2) \text{ (因为物体 A 匀速前进, 所以 } F = \frac{1}{2} f \text{, 则 } f = 2F = 2 \times 100\text{N} = 200\text{N}$$

$$(3) s = 2h = 2 \times 0.5\text{m} = 1\text{m}, W = Fs = 100\text{N} \times 1\text{m} = 100\text{J}$$

$$(4) P = \frac{W}{t} = \frac{100\text{J}}{10\text{s}} = 10\text{W}$$

22、(1) $P = \rho_{\text{水}} gh = 1.0 \times 10^3 \text{kg/m}^3 \times 10\text{N/kg} \times 0.2\text{m} = 2 \times 10^3 \text{Pa}$

(2)从 $h = 14\text{cm}$ 开始, 弹簧测力计示数不变, 说明此时圆柱已经浸没在水中

$$F_{\text{浮}} = G - F_{\text{示}} = 12\text{N} - 8\text{N} = 4\text{N}$$

$$(3) \text{根据 } F_{\text{浮}} = \rho_{\text{液}} g V_{\text{排}} \text{ 得 } V_{\text{柱}} = V_{\text{排}} = \frac{F_{\text{浮}}}{\rho_{\text{液}} g} = \frac{4\text{N}}{1.0 \times 10^3 \text{kg/m}^3 \times 10\text{N/kg}} = 4 \times 10^{-3} \text{m}^3$$

$$(4) m = \frac{G}{g} = \frac{12\text{N}}{10\text{N/kg}} = 1.2\text{kg}, \rho_{\text{物}} = \frac{m}{V_{\text{物}}} = \frac{1.2\text{kg}}{4 \times 10^{-4} \text{m}^3} = 3 \times 10^3 \text{kg/m}^3$$