

《2025-2026 学年度高一物理 12 月月考卷》参考答案

题号	1	2	3	4	5	6	7	8	9	10
答案	B	B	C	A	C	C	B	AC	AC	ABD

11. (1)B (2分) (2)3.70 (2分) (3) F F' (1分)

12. (1)BC (2分, 漏选 1分, 选错 0分) (2)0.34 (3)平衡阻力过度; 0.5 (每空 2分)

13. (10分) (1) 9.0m; (2) 3.6s

【详解】(1) 在驾驶员反应时间内, 汽车做匀速直线运动, 行驶的位移是

$$x_1 = v_0 t_1 \dots\dots\dots 2分$$

$$x_1 = 9.0m \dots\dots\dots 2分$$

(2) 汽车刹车的位移是

$$x_2 = L_{AC} - x_1 - l_{BC} \dots\dots\dots 2分$$

$$x_2 = 22.5m \dots\dots\dots 1分$$

由运动学公式可得

$$x_2 = \frac{v_0 + 0}{2} (t_2 - t_1) \dots\dots\dots 2分$$

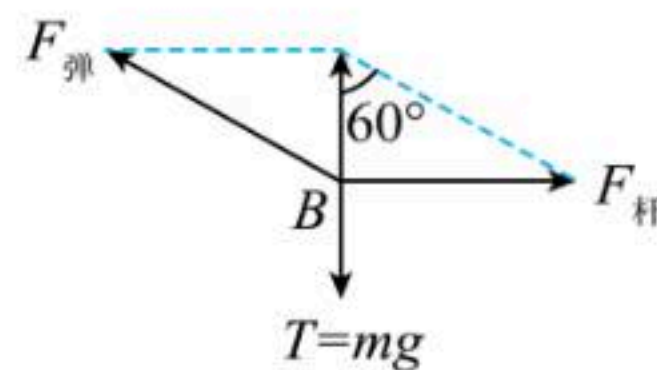
$$t_2 = 3.6s \dots\dots\dots 1分$$

14. (14分) (1) $2\sqrt{3}N$ (2) $80N/m$

【详解】(1) B 点的受力情况如图所示, 根据平衡条件可得轻杆对 B 点的弹力大小为

$$\frac{F_{杆}}{mg} = \tan 60^\circ \dots\dots\dots 2分$$

$$F_{杆} = 2\sqrt{3}N \dots\dots\dots 2分$$



(2) 根据平衡条件可得弹簧弹力大小为

$$\frac{mg}{F_{弹}} = \cos 60^\circ \dots\dots\dots 2分$$

$$F_{弹} = 4N \dots\dots\dots 1分$$

根据几何关系可知弹簧的伸长量为

$$x = \frac{L}{\sin 60^\circ} - l \dots\dots\dots 2分$$

$$x = 5cm \dots\dots\dots 1分$$

根据胡克定律可得，弹簧的劲度系数为

$$F_{\text{弹}} = kx \dots\dots\dots 2 \text{分}$$

$$k = 80 \text{N/m} \dots\dots\dots 2 \text{分}$$

15. (1 6分) (1) $F_{OC} = 16 \text{N}$; $F_{OP} = 8\sqrt{3} \text{N}$ (2) 6N ; 方向: 沿斜面向下 (3) $0.25 \text{kg} \leq m_B \leq 0.75 \text{kg}$

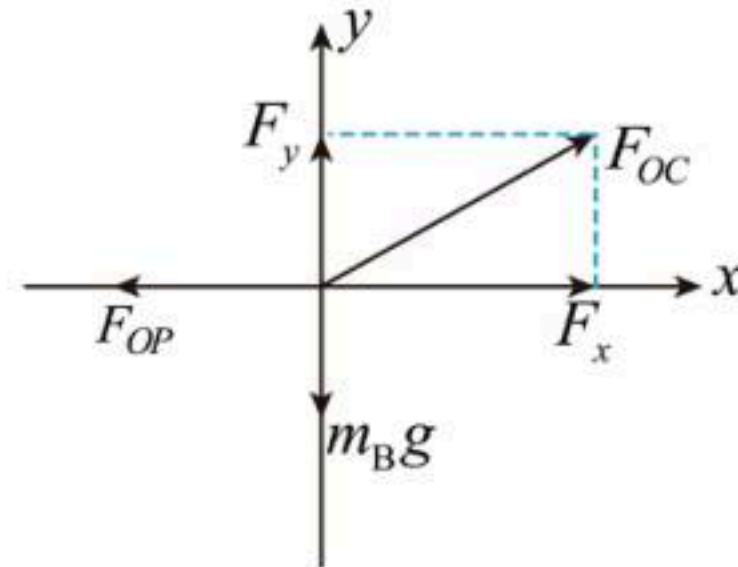
【详解】(1) 以结点 O 为研究对象，受力如图并正交分解

$$F_{OP} - F_{OC} \sin 60^\circ = 0 \dots\dots\dots 1 \text{分}$$

$$F_{OC} \cos 60^\circ - m_B g = 0 \dots\dots\dots 1 \text{分}$$

$$F_{OP} = 8\sqrt{3} \text{N} \dots\dots\dots 1 \text{分}$$

$$F_{OC} = 16 \text{N} \dots\dots\dots 1 \text{分}$$



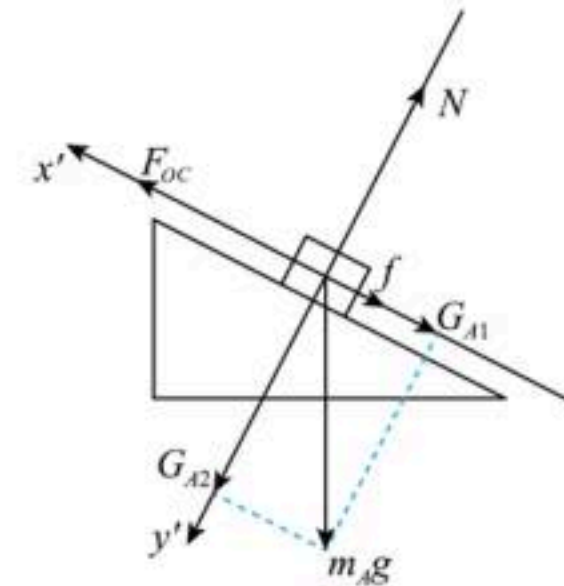
(2) 由题意得，重力沿斜面向下分力小于 OC 拉力，所以摩擦力沿斜面向下据平衡条件有

$$F_{OC} - f - m_A g \sin 30^\circ = 0 \dots\dots\dots 1 \text{分}$$

$$f = 6 \text{N} \dots\dots\dots 1 \text{分} ; \text{方向沿斜面向下} \dots\dots\dots 1 \text{分}$$

$$(3) f_{\text{max}} = \mu m_A g \cos 30^\circ \dots\dots\dots 1 \text{分}$$

$$f_{\text{max}} = 5 \text{N} \dots\dots\dots 1 \text{分}$$

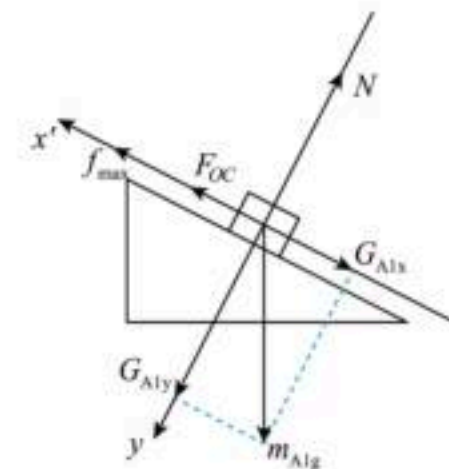


若 B 质量最小， A 受到沿斜面向上的摩擦力，受力分析如图所示

$$F_{OC} + f_{\text{max}} - m_A g \sin 30^\circ = 0 \dots\dots\dots 1 \text{分}$$

$$F_{OC} \cos 60^\circ - m_B g = 0 \dots\dots\dots 1 \text{分}$$

$$m_B = 0.25 \text{kg} \dots\dots\dots 1 \text{分}$$



若 B 质量最大， A 受到沿斜面向下的摩擦力，受力分析如图所示

$$F_{OC} - f_{\text{max}} - m_A g \sin 30^\circ = 0 \dots\dots\dots 1 \text{分}$$

$$F_{OC} \cos 60^\circ - m_B g = 0 \dots\dots\dots 1 \text{分}$$

$$m_B = 0.75 \text{kg} \dots\dots\dots 1 \text{分}$$

$$0.25 \text{kg} \leq m_B \leq 0.75 \text{kg} \dots\dots\dots 1 \text{分}$$

