

物理（後期日程） 解答例

解答例を以下に示す。解答の表記は一通りとは限らない。

1

(1) 水平方向  $F = \frac{4}{5}N_c$  鉛直方向  $N_A + \frac{3}{5}N_c = mg$

(2)  $\frac{3}{10}mgL = \frac{5}{8}N_cL$

(3)  $F = \frac{48}{125}mg$   $N_A = \frac{89}{125}mg$   $N_c = \frac{12}{25}mg$

(4)  $\mu \geq \frac{48}{89} \approx 0.54$  (5)  $\frac{8m^2g^2}{25k}$  (6)  $\frac{2}{5}\sqrt{5gL}$

(7)  $F' = \frac{32}{125}mg(1+3a)$   $N'_A = \frac{2}{125}mg(113-36a)$   $N'_c = \frac{8}{25}mg(1+3a)$

(8)  $a \leq \frac{27}{44} \approx 0.61$

II

(1)  $\frac{\varepsilon_0 L^2}{d}$  (2)  $\frac{\varepsilon_0 L^2}{d}V$  (3)  $\frac{C(x+L)}{L}$  (4)  $\frac{CV(x+L)}{L}$

(5)  $\frac{CV^2}{L}\Delta x$  (6)  $\frac{CV^2}{2L}\Delta x$  (7)  $\frac{CV^2}{2L}$  (8)  $\frac{C(x+3L)}{3L}$

(9)  $\frac{CV(x+3L)}{3L}$  (10)  $\frac{CV^2}{6L}$