

令和4年度 一般入試(前期日程) 物理 解答例

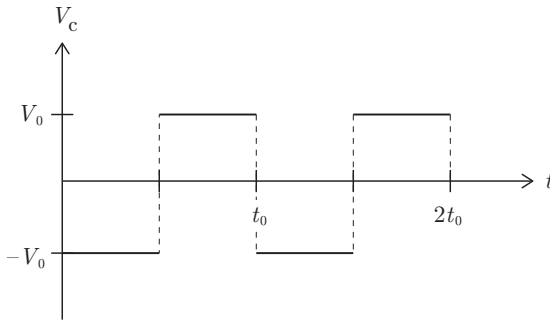
第1問

- (1)  $\mu' mg$  (2)  $-kx + \mu' mg$  (3)  $\frac{\pi}{2} \sqrt{\frac{M}{k}}$  (4)  $\frac{\mu' mg}{k}$  (5)  $\frac{\mu' mg}{\sqrt{Mk}}$   
 (6)  $\pi \mu' g \sqrt{\frac{M}{k}}$  (7)  $\frac{\mu' g}{k} \left( \frac{1}{2} \pi^2 M - 2m \right)$  (8)  $\frac{m}{m+M} kx$  (9)  $\pi \sqrt{\frac{M}{k}} + \frac{\pi}{2} \sqrt{\frac{m+M}{k}}$   
 (10)  $2\pi \sqrt{\frac{m+M}{2k}}$  (11)  $\sqrt{2} \frac{\mu' mg}{k}$  (12)  $\frac{1}{2\sqrt{2}} \frac{\mu}{\mu'} \frac{m+M}{m}$  (13)  $\frac{5\sqrt{6}}{12}$

第2問

- (1)  $\frac{\pi}{\omega}$  (2)  $-e(r-x)\omega B$  (3) 才 (4) 工 (5)  $\frac{1}{2} \omega r^2 \Delta t$  (6)  $\frac{1}{2} \omega r^2 B$   
 (7)  $CV_0$  (8) 0 (9)  $V_0$  (10)  $\frac{1}{2} CV_0$  (11)  $\frac{3}{2} V_0$  (12)  $V_0 + \frac{1}{2} V_n$  (13) 2

問1



第3問

- (1)  $\frac{3}{2} R(T_B - T_A)$  (2)  $\frac{5}{2} R(T_C - T_B)$  (3)  $\left( \frac{p_2}{p_1} \right)^{-\frac{2}{5}}$  (4)  $\frac{T_A T_C}{T_B}$   
 (5)  $\frac{5}{2} R \left( 1 - \frac{T_A}{T_B} \right) (T_C - T_B)$  (6)  $1 - \frac{T_A}{T_B}$  (7)  $T_C$  (8)  $\frac{5}{2} R \left( 1 + \frac{T_A}{T_B} \right) T_C$   
 (9)  $\frac{5}{2} R$  (10)  $\frac{T_A T_C^2}{T_B}$  (11)  $T_C \sqrt{\frac{T_A}{T_B}}$  (12)  $\frac{5}{2} R T_C \left( 1 - \sqrt{\frac{T_A}{T_B}} \right)^2$