

解答紙

(3枚のうち1枚目)

[1] (45点)

[1]の採点

問1	(1)	$\sqrt{2gl(\cos\theta - \cos\theta_0)}$
	(2)	$\frac{3}{5}\sqrt{2gl(1-\cos\theta_0)}$
	(3)	$\frac{6}{5}mgl(1-\cos\theta_0)$
	(4)	$\frac{9}{25}l(1-\cos\theta_0)$
問2	(1)	$-eV_0$
	(2)	$\pi\sqrt{\frac{l}{g}}$
	(3)	$(-1)^{n-1} \cdot 3mV_0$
	(4)	$-e^n V_0$
	(5)	$\frac{3}{5}V_0$

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解答紙

(3枚のうち2枚目)

〔2〕 (40点)

〔2〕の採点

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問 1	(1)	$8E$		
	(2)	$\frac{E}{v}$		
	(3)	$2qx_1E_p$		
	(4)	$\frac{mv^2}{4qx_1} \left\{ \left(\frac{B_w}{B_v} \right)^2 - 1 \right\}$		
	(5)	A	(c)	T
問 2	(1)	$\frac{Kvaab}{R}$		
	(2)	$IKab$		
	(3)	RI^2t_0		

解答紙

(3枚のうち3枚目)

[3] (40点)

[3]の採点

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問 1	(1)	$p_B = \frac{V_A}{V_B} p_A$
	(2)	④
	(3)	$\Delta U = -\frac{3}{2} nR (T_{AB} - T_{CD})$
	(4)	$\frac{V_C}{V_B} = \left(\frac{T_{AB}}{T_{CD}}\right)^{\frac{3}{2}}$
問 2	(ア)	$W_{AB} = Q_{in}$
	(イ)	$W_{BC} = \frac{3}{2} nR (T_{AB} - T_{CD})$
	(ウ)	$W_{CD} = -Q_{out}$
	(エ)	$W_{DA} = -\frac{3}{2} nR (T_{AB} - T_{CD})$
	(2)	$Q_{in} = nR T_{AB} \log_e \left(\frac{V_B}{V_A}\right)$
		$Q_{out} = nR T_{CD} \log_e \left(\frac{V_B}{V_A}\right)$
	(3)	$e_1 = 1 - \frac{T_{CD}}{T_{AB}}$
	(4)	⑤
問 3	(1)	$\frac{V_C}{V_C} = \frac{T_{AB}}{T_{CD}}$
	(2)	(e)