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L2–PHYSR

992603

NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

QUALIFY FOR THE FUTURE WORLD
KIA NOHO TAKATŪ KI TŌ ĀMUA AO!

Level 2 Physics, 2015

9.30 a.m. Tuesday 17 November 2015

RESOURCE SHEET
for 91170, 91171, and 91173

Refer to this sheet to answer the questions in your Question and Answer Booklets.

Check that this sheet is printed on the back.

YOU MAY KEEP THIS SHEET AT THE END OF THE EXAMINATION.

You may find the following formulae useful.

91170 Demonstrate understanding of waves

$\frac{1}{f} = \frac{1}{d_o} + \frac{1}{d_i}$ or $s_i s_o = f^2$

$m = \frac{d_i}{d_o} = \frac{h_i}{h_o}$ or $m = \frac{f}{s_o} = \frac{s_i}{f}$

$n_1 \sin\theta_1 = n_2 \sin\theta_2$ $\frac{n_1}{n_2} = \frac{v_2}{v_1} = \frac{\lambda_2}{\lambda_1}$

$v = f\lambda$ $f = \frac{1}{T}$ $v = \frac{d}{t}$

Speed of light in a vacuum $= 3.00 \times 10^8$ m s^{-1}

91171 Demonstrate understanding of mechanics

$v = \frac{\Delta d}{\Delta t}$ $a = \frac{\Delta v}{\Delta t}$ $v_f = v_i + at$

$d = v_i t + \frac{1}{2}at^2$ $d = \frac{v_i + v_f}{2}t$ $v_f^2 = v_i^2 + 2ad$

$a_c = \frac{v^2}{r}$

$F = ma$ $\tau = Fd$ $F = -kx$

$F_c = \frac{mv^2}{r}$ $p = mv$ $\Delta p = F\Delta t$

$E_p = \frac{1}{2}kx^2$ $E_k = \frac{1}{2}mv^2$ $\Delta E_p = mg\Delta h$

$W = Fd$ $P = \frac{W}{t}$

circumference of circle $= 2\pi r$

where needed, use $g = 9.8$ m s^{-2}

91173 Demonstrate understanding of electricity and electromagnetism

$E = \frac{V}{d}$ $F = Eq$ $\Delta E_p = Eqd$

$E_k = \frac{1}{2}mv^2$

$I = \frac{q}{t}$ $V = \frac{\Delta E}{q}$ $V = IR$

$P = IV$ $P = \frac{\Delta E}{t}$

$R_T = R_1 + R_2 + \ldots$ $\frac{1}{R_T} = \frac{1}{R_1} + \frac{1}{R_2} + \ldots$

$F = BIL$ $F = Bqv$ $V = BvL$

Charge on an electron $= -1.6 \times 10^{-19}$ C

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