

L1-PHYSMR



NEW ZEALAND QUALIFICATIONS AUTHORITY  
MANA TOHU MĀTAURANGA O AOTEAROA

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

## Ahupūngao, Kaupae 1, 2018

2.00 i te ahiahi Rāmere 23 Whiringa-ā-rangi 2018

**PUKA TIKANGA TĀTAI**  
mō 90937M, 90938M me  
90939M

Tirohia tēnei puka hei whakatutuki i ngā tūmahi o ō Pukapuka Tūmahi, Tuhiinga hoki.

Tirohia mēnā e tika ana te raupapatanga o ngā whārangi 2–3 kei roto i tēnei pukapuka, ka mutu, kāore tētahi o aua whārangi i te takoto kau.

**KA TAEA TĒNEI PUKA TE PUPURI HEI TE MUTUNGA O TE WHAKAMĀTAUTAU.**

Tērā pea ka whai hua ēnei tikanga tātai, raraunga hoki ki a koe.

**90937M Te whakaatu māramatanga ki ētahi āhuatanga o te hiko me te autō**

$$V = IR \quad P = IV \quad P = \frac{E}{t} \quad R_T = R_1 + R_2 + \dots$$

$$B = \frac{kI}{d} \quad k = 2.0 \times 10^{-7} \text{ T m A}^{-1}$$

**90938M Te whakaatu māramatanga ki ētahi āhuatanga o te ngaru**

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

**90939M Te whakaatu māramatanga ki ētahi āhuatanga o te wera<sup>1</sup>**

$$Q = mc\Delta T \quad Q = mL \quad P = \frac{E}{t}$$

**Raraunga whaihua**

Kītanga wera motuhake o te tio = 2100 J kg<sup>-1</sup> °C<sup>-1</sup>

Kītanga wera motuhake o te wai = 4200 J kg<sup>-1</sup> °C<sup>-1</sup>

Wera moe o te honokarihi wai = 330 000 J kg<sup>-1</sup>

Wera moe o te whakahaurehu wai = 2 300 000 J kg<sup>-1</sup>

<sup>1</sup> pōkākā

You may find the following formulae and data useful.

**90937 Demonstrate understanding of aspects of electricity and magnetism**

$$V = IR \quad P = IV \quad P = \frac{E}{t} \quad R_T = R_1 + R_2 + \dots$$

$$B = \frac{\mu_0 I}{d} \quad \mu_0 = 2.0 \times 10^{-7} \text{ T m A}^{-1}$$

**90938 Demonstrate understanding of aspects of wave behaviour**

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

**90939 Demonstrate understanding of aspects of heat**

$$Q = mc\Delta T \quad Q = mL \quad P = \frac{E}{t}$$

**Useful data**

Specific heat capacity of ice = 2100 J kg<sup>-1</sup> °C<sup>-1</sup>

Specific heat capacity of water = 4200 J kg<sup>-1</sup> °C<sup>-1</sup>

Latent heat of fusion of water = 330 000 J kg<sup>-1</sup>

Latent heat of vaporisation of water = 2 300 000 J kg<sup>-1</sup>

*English translation of the wording on the front cover*

L1-PHYSMR

## Level 1 Physics, 2018

2.00 p.m. Friday 23 November 2018

**RESOURCE BOOKLET**  
for 90937, 90938, and 90939

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

Check that this booklet has pages 2 and 3 in the correct order and that neither of these pages is blank.

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