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LEVEL 3 CAMBRIDGE TECHNICAL IN APPLIED SCIENCE

05847/05848/05849/05874/05879

Data sheet (Insert)

Unit 1 Science fundamentals
Unit 2 Laboratory techniques

C349-1901

INFORMATION FOR LEARNERS

- This Insert contains formulae which learners studying the above units and taking associated examination papers may need to access.
- Other relevant formulae may be provided in some questions within examination papers. However, in most cases suitable formulae will need to be selected and applied by the learner.
- Formulae have been organised by unit.
- This document consists of **2** pages.

INSTRUCTIONS TO EXAMS OFFICER/INVIGILATOR

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NOTE FOR TEACHERS

- This insert does not replace the taught content in the unit specifications or contain an exhaustive list of required formulae.

Unit 1

Density (kg/m^3) = mass (kg) ÷ volume (m^3)

Current (A) = number of electrons per m^3 × cross-sectional area of conductor (m^2) × drift velocity (m s^{-1}) × electron charge (C)

$I = \Delta Q \div \Delta t$

Potential difference (V) = current (A) × resistance (Ω)

Charge (C) = current (A) × time (s)

Power (W) = energy (J) ÷ time (s)

Power (W) = potential difference (V) × current (A)

Energy transferred (work done) (J) = charge (C) × potential difference (V)

Energy transferred (J, kWh) = power (W, kW) × time (s, h)

Area of a circle = πr^2

Circumference of a circle = $2\pi r$

Current flow:

Series $\quad Rt = R_1 + R_2 + R_3$

Parallel $\quad \frac{1}{Rt} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$

Unit 2

$n = c \times V$

where:

c = concentration (mol dm^{-3})

n = number of moles

V = volume (dm^3)

Magnification = measured size ÷ actual size