# 20. D.C. Circuits

20.1 Practical circuits

20.2 Conservation of charge and energy

20.3 Balanced potentials

# Candidates should be able to:

(a) recall and use appropriate circuit symbols

(b) draw and interpret circuit diagrams containing sources, switches, resistors, ammeters,

voltmeters, and/or any other type of component referred to in the syllabus.

(c) recall Kirchhoff's first law and appreciate the link to conservation of charge.

(d) recall Kirchhoff's second law and appreciate the link to conservation of energy.

(e) derive, using Kirchhoff's laws, a formula for the combined resistance of two or more

resistors in series.

(f) solve problems using the formula for the combined resistance of two or more resistors in

series.

(g) derive, using Kirchhoff's laws, a formula for the combined resistance of two or more

resistors in parallel.

(h) solve problems using the formula for the combined resistance of two or more resistors in

parallel.

(i) apply Kirchhoff's laws to solve simple circuit problems.

(j) show an understanding of the use of a potential divider circuit as a source of variable p.d.

(k) explain the use of thermistors and light-dependent resistors in potential dividers to provide

a potential difference which is dependent on temperature and illumination respectively.

(l) recall and solve problems using the principle of the potentiometer as a means of

comparing potential differences.

# Paper 1 Questions

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# Paper 2 Questions

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4 (figure 6.1 appears at the end of question)



