

Exam Practice Guide

Unit 2 Specialist Mathematics Examination 2

Key Features:

- ✓ 96 original examination style questions on all examinable topics.
- ✓ Full solutions and a marking guide to all questions.
- ✓ Separated into key topic areas within each Area of Study, enabling students to master one topic at a time.
- ✓ Written by VCE assessors who mark the real examinations.
- ✓ Excellent resource for examination practice.

Helping VCE students be the best they can be.

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SAMPLE

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AREA OF STUDY 1: Algebra

Topic 1 – Boolean Algebra

Question 1

Which of the following statements matches with the symbolic statement $p \wedge (q \vee r)$?

- A. You can have the veal or the smoked salmon and pasta.
- B. We can order the dress in red, but not blue or green.
- C. If you choose to not buy the reference book, you can buy the cookbook or autobiography.
- D. The committee requires two new members, one must be a student and the other can be a parent or teacher.
- E. Ballarat, Bendigo and Horsham are all West of Melbourne.

Question 2

The truth table at the right is for:

- A. $p \rightarrow q$
- B. $p \wedge q$
- C. $p \vee q$
- D. $p \wedge \sim q$
- E. $p \rightarrow \sim q$

p	q	?	?
T	T	F	F
T	F	T	T
F	T	F	T
F	F	T	T

Question 3

Determine which of the following arguments are not valid:

- A. Bacteria can make their own food. I am looking at an organism that can make its own food. Therefore, it is a bacterium.
- B. New computers have USB ports, I have a new computer. Therefore, it has USB ports.
- C. All cats have incisors. I have a pet cat. Therefore, it must have incisors.
- D. All birds have feathers. My friend has a bird. Therefore, it must have feathers.
- E. If I do not study hard, I will not get a good score. I didn't study. Therefore, I will not get a good score.

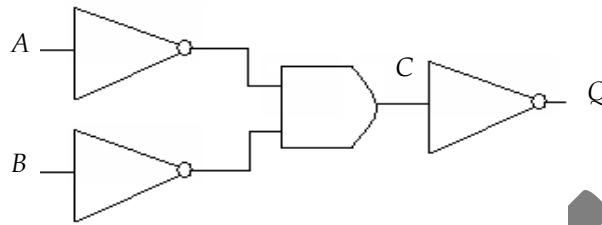
Question 4

Which of the following Boolean expressions simplifies to $A'B$?

- A. $A + A'B + A \cdot B$
- B. $A + B(A + B')$
- C. $A'(A + B \cdot A')$
- D. $A + A'(B + B')$
- E. $A' + A(A' + B')$

Question 5

Which of the following Boolean expressions correctly represents this electronic circuit?



- A. $(A + B)'$
- B. $A + B$
- C. $(A + B)'C$
- D. $A' + B$
- E. $A \cdot B + C$

Question 6

Which of the following statements matches with the symbolic statement $p \rightarrow (q \wedge r)'$?

- A. If it is cold outside, then I will catch a cold or worse.
- B. If I do not drive slowly, I will be caught by the police and given a ticket.
- C. If Harry cleans his house, then he can have friends over or relax a little.
- D. If Julie eats quickly, then she will have a stomach ache and she will have to stay home.
- E. If I clean my shoes, then I can wear them inside and not take them outside again.

Question 7

p	q	?
T	T	F
T	F	T
F	T	F
F	F	F

The truth table above is for:

- A. $p \wedge \sim q$
- B. $p \wedge q$
- C. $p \vee q$
- D. $\sim p \wedge q$
- E. $\sim (p \wedge q)$