



QUESTION WORKBOOK

Contingency tables

Further Statistics 1 · Year FM

7 questions · 23 marks

NAVY SCREEN EDITION

SECTION A · Warm-up

A1 State the null hypothesis of a contingency table test, and the formula for an expected frequency. [2]

A2 A contingency table has 4 rows and 5 columns. State the degrees of freedom. [1]

SECTION B · Standard

B1 A survey gives the rows (25, 15, 10) and (15, 25, 10). Find all six expected frequencies. [3]

B2 Using those figures, compute the chi-squared statistic and test for association at the 5% level, given a critical value of 5.991. [5]

- B3** A 2×2 contingency table has all four expected frequencies above 5. Explain why it carries only one degree of freedom. [2]

- B4** A test on a contingency table gives a significant result. Explain what may and may not be concluded from it. [3]

SECTION C · Stretch

- C1** A 2×3 table has rows (40, 30, 5) and (20, 20, 5). Find the expected frequencies, explain what must be done before the test can proceed, and carry out the test at the 5% level. The upper 5% points of χ^2 are 3.841 for 1 degree of freedom, 5.991 for 2 and 7.815 for 3. [7]