



QUESTION WORKBOOK

Mixed strategies

Decision Mathematics 2 · Year FM

6 questions · 26 marks

NAVY SCREEN EDITION

SECTION A · Warm-up

- A1** Explain why a game with no stable solution needs a mixed strategy, rather than the row that gives the best worst case. [2]

- A2** Against two columns the expected pay-offs are $2 + 5p$ and $7 - 3p$. Find the optimal p and the value of the game. [3]

SECTION B · Standard

- B1** A game has rows R1 (6, 2) and R2 (3, 7). Show it has no stable solution, then find the row player's optimal mix and the value. [6]

- B2** A game has rows R1 (6, 2) and R2 (3, 7), and the row player's optimal mix gives it a value of 4.5. Find the column player's optimal mix and use it to check that value. [5]

- B3** A student says the row player should favour R2 here, since its entries 3 and 7 total more than R1's 6 and 2. Explain what is wrong. [3]

SECTION C · Stretch

- C1** A game has rows R1 (4, 1, 6) and R2 (2, 7, 3). Find the row player's optimal mix graphically and state which column the other player never uses. Then say how a 3 by 3 game would be handled instead. [7]