Zonal Informatics Olympiad, 2011: *Answer sheet*

1. (a) Minimum number of steps: .... | **17** |

   (b) Minimum number of steps: .... | **51** |

   (c) Minimum number of steps: .... | **48** |

2. (a) $N = 5$, $K = 76$ .... | **4 1 3 5 2** |

   (b) $N = 7$, $K = 4197$ .... | **6 5 7 4 2 1 3** |

   (c) $N = 9$, $K = 191082$ .... | **5 7 9 3 2 6 8 4 1** |

3. (a) Number of pairs: .... | **37** |

   (b) Number of pairs: .... | **45** |

   (c) Number of pairs: .... | **54** |

4. (a) First row: .... | **0 0 1 1 0 1 1 1** |

   (b) First row: .... | **0 0 0 1 1 1 0 1 1 0 1 1** |

   (c) First row: .... | **0 0 1 1 1 1 0 1 1 1 0 1 0 1 1** |