Answers to MST Paper M2 Operations Management Past Tripos Questions

Below are my answers to the past exam questions for MS5.

If you think I've got any of these wrong then let me know - it's possible I've made an arithmetic slip somewhere, particularly on the more recent years, as those answers have been checked by fewer students.

2000:
5 (a) every 225 days (b) 121 units (c) 1767 pounds (d) retain (on the basis that it helps attract customers) and order 162 units every 4 weeks 6 (a) 5 stations, 480 units/day
(b) 2,1/3/1,4,5,6,7,9/8,10/11 (c) 2,1/3/4,6/5,7,8,9/10,11 (d) 2,5/3/1,4,6,7,8,9/10,11
7 (a) I'd avoid, but it's 0.2 (b) MAV is better
8 (b) increases (c) In house is better (saves 7108 pounds annually)

2001:
7 NB: the Judge Intranet version of this question incorrectly says demand is 360,00 - it should be 360,000. (a) 1111 units/day (b) no effect (c) orders from vendor will be smaller
8 NB: the question should be wholly in terms of per day, rather than a mixture of per day and per week. (b) 73 days (c) 11035 pounds

2002:
5 (a) 11.2 (b) DBEFCA? It's not clear if demand is per day, or what the criteria are
6 (a) 1,2,6,3/4,5,9,7/8,12,10,11/13,14,15
  (b) 1,2,3,5/4,6,7,8/9,11,12/10,13,14,15 gives cycle time of 26 mins
  (c) 1,2,3,6,4/5,9,12,8/7,10,11,13,14,15 gives cycle time of 34 mins
7 Go for supplier 3 (47420 pounds) rather than 2 (49387) or 1 (51414 less the 2000 discount), except... the question doesn't rule out splitting one's needs across the suppliers, and that can work out cheaper... I think you are expected to ignore this though.
8 (a) 919 (b) 24% (c) 288 cases

2003:
6 (a) 9 days (b) 5 days
7 I'd avoid
8 (a) fceadb (b) eacfdb (c) 2 (d) edabcf

2004:
6 (a) 44612kg (b) 33905 (c) 40347 pounds (d) 24% (e) no change
8 DGIBJEAC + subcontract FH

2005:
8 (a) 0.5 weeks (b) money value of unprocessed
cheques falls from £700000 to £620000, so yes (c) 11.4% reduction.

2006:
5 I can offer you numerous thoughts, but frankly, don't know the correct answer to this
6 (a) 54 (b) 24 litres (c) 4.94 years (?) (e) I haven't a clue
7 (a) 26.67 (b) 66.67% (c) 2.5 hrs
8 (a) 505.5 per day (b) One more, for Board B, to produce up to 682.4 PCs per day (c) Three ACP machines now enough, to produce up to 525 PCs per day.

2007:
5 (d) and (e) (Assuming the cost of processing is the only fixed cost) Average inventory multiplied by about 0.4 and ordering frequency multiplied by about 2.4.
7 8 minutes at the counter plus 4 minutes at the tills
8 (c) 112.5%

2008
5 (a) 1333 people/hour (b) 22.2 people
8 (b) buy 10 six packs every 12 weeks (c) every 0.218 months

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