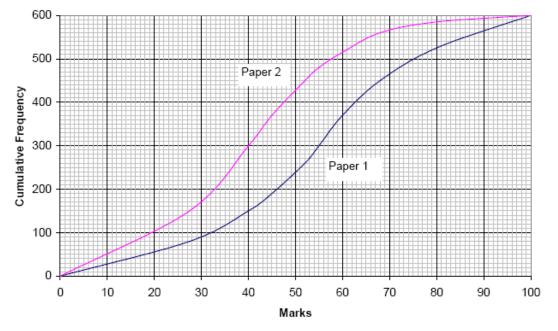
## **Sample SMMT Questions**

The following are some specimen questions for SMMT. However, it does not indicate that the SMMT paper that you will be sitting contains questions that are similarly structured. *The questions only show that you are required to be conceptually sound before you can pass the SMMT – the traditional "drill-and-practice" is not sufficient for you to clear the SMMT.* 

The actual SMMT paper will consist of about 18 to 21 questions of varying length. The level of difficulty of the paper will be around that of the following questions.

- 1. Consider the nine numbers
- 0.4,  $\frac{3}{2}$ ,  $\sqrt{2}$ ,  $\pi$ , 5, 9, 17, 40, 121. Write down (a) the two prime numbers (b) the two square numbers (c) the irrational numbers
- 2. Three bus services operate from the same depot. The first service leaves at 10minute intervals, the second at 15-minute intervals and the third at 25-minute intervals. All three services leave the depot together at 08 00. Find the time when the three services next leave the depot together.
- 3. Solve the equation  $4\sqrt{k} = -1$  for real values of *k*.
- 4. Given that  $y = x^{m^2 5m + 7}$ , if y varies directly as x, find the possible values of m.
- 5. (a) Let ABC be a triangle with M and N as the midpoints of the sides AB and AC respectively. Show that MN is parallel to BC and is half the length of BC.
  - (b) Let ABCD be a quadrilateral. Let M, N, P and Q be the midpoints of AB, BC, CD and DA respectively. By using (a) above, prove that MNPQ is a parallelogram.

6. Six hundred candidates took a Mathematics examination which consisted of two papers. Each paper was marked out of 100. The diagram shows, on the same axes, the cumulative frequency curves for Paper 1 and Paper 2.



- (a) Use the graph for Paper 1 to estimate(i) the median,(ii) the interquartile range,
  - (iii) the number of candidates who scored more than 45 marks.
- (b) A candidate scored 60 on Paper 1. Use the two graphs to estimate this candidate's mark on Paper 2.
- (c) State, with a reason, which you think was the more difficult paper.
- 7. A right circular cylinder open at one end and closed at the other end is to be constructed with surface area 100 cm<sup>2</sup>. What is the largest possible volume of the cylinder?<sup>a</sup>

<sup>&</sup>lt;sup>a</sup> Note that Additional Mathematics questions like this will appear in SMMT PGDE (All Sec) paper but not the PGDE (Lower Sec) paper.