

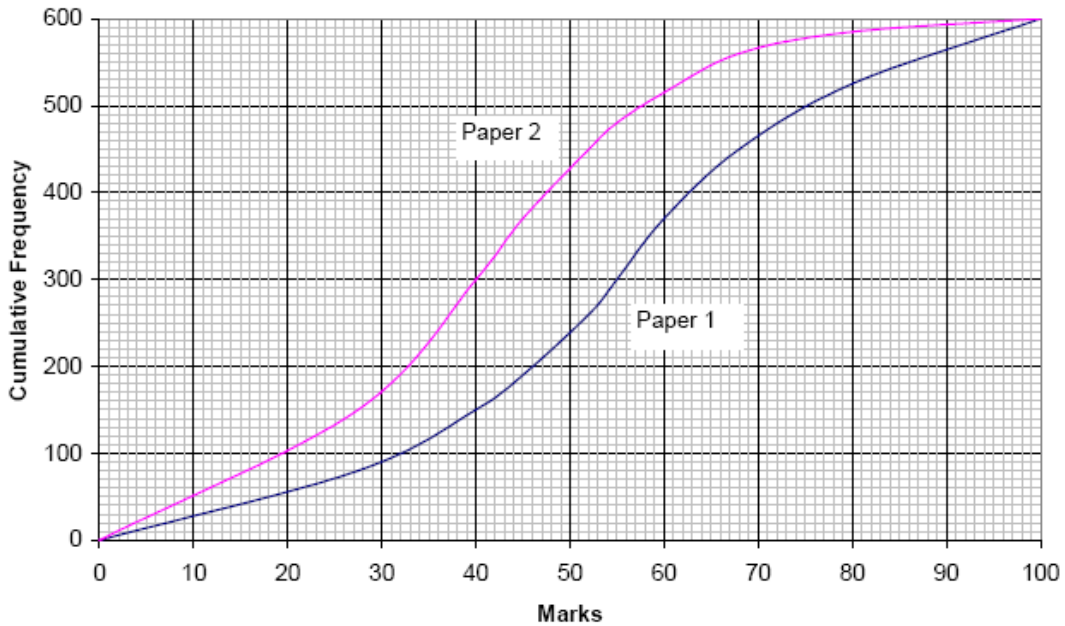
Sample SMMT Questions

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 10-minute 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
- the median,
 - the interquartile range,
 - 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^2 . What is the largest possible volume of the cylinder?^a

^a Note that Additional Mathematics questions like this will appear in SMMT PGDE (All Sec) paper but not the PGDE (Lower Sec) paper.

