Credit will be given for *five* answers only; candidates are advised not to answer more than *five* questions.

The questions are all of equal value.

NOTE: *These instructions apply also to the papers for the years* 1960—1956, *inclusive.*

1. (*a*) What must be added to $5x^2-7x+2$ to give $7x^2-1$?
   (*b*) What must be added to $2x^2-17x$ to make it divisible by $x-3$?

2. Factorize:
   (*a*) x^2-6x+5;
   (*b*) $a^2x+a(1-x^2)-x$;
   (*c*) $4x^2y+2xy^2-6y^3$;
   (*d*) $a^2+b^2-c^2+2ab$.

3. A dealer buys x tons of coal at £y per ton. If he sells the coal at z halfcrowns per cwt. he makes 25% profit. Show that $z = \frac{1}{2}y$.

4. (*a*) What is the least value $(x-5)^2$ can have?
   (*b*) When $(x-5)^2$ is less than $(x-2)^2$ by 5, what is the value of x?

(c) Can $\frac{x+10}{x}$ be equal to 1? Give the reason for your answer.

5. Simplify: $\frac{ab-ac}{ab-bc} \times \frac{3abc}{12a^2} \times \frac{a^2-ac}{b^2-bc}$.

Find its value when $\frac{1}{2}ac = 2b$.

6. (a) What value of c makes $(x-2)^2-(x-1)(x-3) = c$ an identity? Prove it is an identity when c has that value.

(b) What values of a make $9x^2+ax+4$ a perfect square?

7. Divide £1,120 between A and B so that twice A's share may equal five times B's share.

8. (a) Find two numbers whose product is equal to the difference between the squares of 757 and 243.

(b) Write down 5 consecutive odd numbers of which x is the middle one.