## QUESTION 2 (6 marks)

Polynomial $S(x)$ has a remainder of $x+1$ when divided by $x^{2}+x-2$.
(a) (i) Write $S(x)$ in the form $S(x)=Q(x) D(x)+R(x)$, where $Q(x)$ is the quotient, $D(x)$ is the divisor, and $R(x)$ is the remainder.

(ii) Find the remainder when $S(x)$ is divided by $x+2$.

(b) If $P(x)=S(x)-T(x)$, where $T(x)$ is a polynomial and $T(-2)=-1$, show that $x=-2$ is a zero of the polynomial $P(x)$.


