2 (i) Sum of zeros $= \frac{1}{4}$ (s)

Product of zeros $= -1$ (p)

required polynomial

$= k(x^2 - sx + p)$

$= k(x^2 - \frac{1}{4}x - 1)$

$= 4\left(\frac{4x^2 - x - 4}{4}\right)$ ($k = 4$)

$= 4x^2 - x - 4$

2 (ii) Sum of zeros $= \sqrt{2}$

Product of zeros $= \frac{1}{3}$

required polynomial

$= k(x^2 - sx + p)$

$= k(x^2 - \sqrt{2}x + \frac{1}{3})$

$= 3\left(\frac{3x^2 - 3\sqrt{2}x + 1}{3}\right)$ ($k = 3$)

$= 3x^2 - 3\sqrt{2}x + 1$

2 (iii) Sum of zeros (s) $= 0$

Product of zeros (p) $= \sqrt{5}$

required polynomial $= k(x^2 - sx + p)$

$= k(x^2 - 0x + \sqrt{5})$

$= 1(x^2 + \sqrt{5})$ ($k = 1$)

$= x^2 + \sqrt{5}$