Surname: _____; Given name: _____; Student number: _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question. Transfer your answers to the scantron sheet.

1) The reaction below has a K_p value of 41 atm^{-2}. What is the value of K_c for this reaction at 400 K? 1) _____

$$N_2(g) + 3H_2(g) = 2NH_3(g)$$

A) $1.9 \times 10^4\ M^{-2}$
B) $2.4 \times 10^{-2}\ M^{-2}$
C) $4.4 \times 10^4\ M^{-2}$
D) $2.3 \times 10^{-5}\ M^{-2}$
E) $41\ M^{-2}$

2) 4.55 L sample of water contains 0.115 g of sodium ions. Determine the concentration of sodium ions in ppm if the density of the solution is 1.00 g mL^{-1}. 2) _____

A) 52.3 ppm B) 12.7 ppm C) 13.2 ppm D) 25.3 ppm E) 36.5 ppm

3) A catalyst: 3) _____

I) lowers activation energy
II) provides an alternate reaction pathway