

## QUIZ 1 (B12)

Thursday, January 24, 2008

**Duration:** 25 minutes.

**Supporting material:**

Using **any** supporting material (e.g. notes, books, calculators, cellphones) is **strictly forbidden**, and will be dealt with to the fullest extent by the relevant University policies. To clarify, you are allowed to have only writing tools and food with you during the examination.

**Instructions:**

- Write your name and student number on each page that you submit, including this sheet, which you are expected to return.
- The maximum mark on this quiz is 25.
- Show and explain your work!

**Exercise 1.** *The cost of producing 100 lbs. of ice-cream is \$350, while the cost of producing 250 lbs. of ice-cream is \$800.*

- 3 (a) *Assuming that the cost  $C(x)$  is a linear function of the output  $x$ , find  $C(x)$ .*
- 2 (b) *Find the fixed cost.*
- 2 (c) *Find the marginal cost.*
- 3 (d) *Assuming that one lb. of ice-cream sells for \$5, find the break-even point.*

**Exercise 2.** *Let  $f(x) = \sqrt{4 - x^2} - 3$ .*

- 5 (a) *Find the domain of  $f(x)$ .*
- 5 (b) *Find the range of  $f(x)$ .*

**Exercise 3.** *Solve the following equations:*

- 4 (a)  $4^x = 8 \cdot 2^{-2x+8}$ ;
- 6 (b)  $\frac{\ln(x+3)}{\ln(x+1)} = 2$ .

**GOOD LUCK!!!!**