

Cork Institute of Technology

Higher Certificate in Science in Applied BioSciences – Award

(NFQ Level 6)

Autumn 2007

Bioprocessing

(Time: 2 hours)

Instructions

Answer any **FOUR** questions.

Examiners: Ms. A. Murphy

All questions carry equal marks.

Dr. T. Beresford

- Q1.(a) What would be the expected residual levels of salt (%), nitrate and nitrite (p.p.m.) when bacon is manufactured by injecting pork at 15.4% with a brine containing 16.6% salt, 0.20% nitrate and 0.09% nitrite? (15 marks)
- (b) What injection level of a brine containing 17.2% would be required to produce bacon with a residual salt level of 2.4%. (10 marks)
- Q2. (a) Milk produced for commercial purposes is both pasteurised and homogenised. Describe briefly these processes. (15 marks)
- (b) Describe the steps involved in the manufacture of fruit yoghurt. (10 marks)
- Q3 (a) Outline briefly the steps involved in the production of beer. (10 marks)
- (b) Describe briefly the main categories of food additives and include examples of each category. (15 marks)

Q4 (a) 4563 kg of milk containing 3.46% fat is separated into cream containing 41% fat and skim milk containing 0.01% fat. What weights of cream and skim milk would be expected from the separation process? (15 marks)

(b) The fat content of 8990kg of milk needs to be increased from 3.40% to 3.55%. How much skim milk containing 0.02% fat should be removed from the milk to increase the fat content? (10 marks)

Q5. Write a brief note on **five** of the following preservation methods. Give examples of products preserved by each method.

(i) Spray Drying

(ii) Blast Freezing

(iii) Canning

(iv) Irradiation

(v) Modified Atmosphere Packaging

(vi) Fluidised Bed Drying (25 marks)

Q6. Discuss in detail **four** colloids that are commercially produced in the food and pharmaceutical industries. Give examples of each colloid. (25 marks)

Q7. Write a note on four of the following areas in relation to meat quality and meat production.

(i) E Coli 0157 contamination and control measures in abattoirs.

(ii) Specified Risk Materials and B.S.E. control in abattoirs.

(iii) Humane Stunning Methods.

(iv) Effect of preslaughter stress on meat quality

(v) Dry Curing (25 marks)