

Cork Institute of Technology

Higher Certificate in Science in Applied Biology – Award

(NFQ – Level 6)

Autumn 2006

Bioprocessing

(Time: 2 hours)

Instructions

Answer any **FOUR** questions.

Examiners: Ms. A. Murphy

All questions carry equal marks.

Dr. T. Beresford

Q1. (a) Briefly describe **four** of the following milk processing methods which are used in commercial milk production.

(i) Pasteurisation

(ii) Clarification

(iii) Evaporation

(iv) Sterilisation

(v) Dried Milk Powder Production

(b) Outline the steps involved in the manufacture of natural yoghurt.

Q2 (a) Outline briefly the steps involved in the production of wine.

(b) Define the term “Curing”. List the main ingredients used in curing and outline briefly their functions.

Q3.(a) What would be the expected residual levels of salt (%), nitrate and nitrite (p.p.m.) when bacon is manufactured by injecting pork at 15.9% with a brine containing 15.8% salt, 0.22% nitrate and 0.11% nitrite?

(b) What injection level of a brine containing 15.5% salt should be used to give bacon with a residual salt level of 2.25%?

- Q4 (a) What weight of cream containing 38% fat and skim milk containing 0.01% fat would be expected from the separation of 7565kg of milk containing 3.6% fat?
- (b) How much skim milk containing 0.02% fat should be removed from 8500kg of milk in order to increase the fat content from 3.49% to 3.64%?
- Q5. Describe **four** of the following preservation methods. Give examples of products preserved by each method.
- (i) Roller Drying
 - (ii) Fluidised Bed Drying
 - (iii) Canning
 - (iv) Irradiation
 - (v) Modified Atmosphere Packaging
- Q6. Outline a laboratory method for the determination of the water binding capacity of meat.
- Q7. (a) Describe briefly the steps involved in the slaughtering process of poultry.
- (b) Discuss the control measures in place in abattoirs to prevent bacterial contamination.
- Q8. (a) Discuss the production of free-range eggs in Ireland.
- (b) State the components of the animal which are classified as specified risk material for BSE.
- Outline the procedures in place in abattoirs for its processing and removal.