

Cork Institute of Technology

Bachelor of Science in Applied Biosciences – Stage 2

(SBIOS_7_Y2)

Autumn 2008

Quality Management Systems & Biocomputing

(Time: 2 Hours)

Answer FOUR questions.

Examiners: Ms. A. Ward

Answer TWO questions from Section A and
TWO questions from Section B

Mr. S. McCarthy

Dr. T. Beresford

Section A

- Q1.** A company manufactures a food product with mass specifications of 6.80 ± 0.20 grams. Every hour samples are taken from the machine and the masses determined. Over a period of ten hours the following results were obtained:

Hours	1	2	3	4	5	6	7	8	9	10
	6.70	6.73	6.73	6.80	6.82	6.83	6.83	6.92	6.93	7.02
	6.72	6.71	6.75	6.78	6.83	6.82	6.84	6.90	6.94	6.01
	6.67	6.73	6.80	6.76	6.84	6.84	6.86	6.87	6.97	6.97
	6.71	6.74	6.76	6.80	6.80	6.83	6.87	6.89	6.95	6.99

- (a) Draw average and range charts for the above data. (25 marks)
- (b) Discuss the significance of your results. (5 marks)

Useful data:		
Sample Size	$A_{0.025}^{11}$	$D_{0.01}^I$
2	1.51	4.12
3	1.16	2.98
4	1.02	2.57
5	0.95	2.34
6	0.90	2.21
7	0.87	2.11

Q2. Discuss the different quality control charts used with machine or process systems. (25 marks)

Q3. Write concise notes on:
(a) Normal and non-normal frequency distribution curves.
(b) Machine and process capability (25 marks)

Section B

Q4. Write a brief overview of **TWO** of the following:
(a) Quality Audits
(b) Quality Costs
(c) Training for Quality
(d) Customer Complaints System (25 marks)

Q5. (a) Write a brief note on Motivational Techniques in quality. (5 marks)

(b) Outline the principle of a quality circle. (10 marks)

(c) Briefly outline the structure of a quality circle and how it operates. (10 marks)

Q6. (a) Outline the seven basic stages of the design process in product design. (14 marks)

(b) Write a brief note on the role of the design department. (11 marks)