

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF APPLIED SCIENCES

BACHELOR OF SCIENCE HONOURS DEGREE EXAMINATIONS

DEPARTMENT OF APPLIED BIOLOGY AND BIOCHEMISTRY

SUPPLEMENTARY EXAMINATION: PRINCIPLES OF QUALITY ASSURANCE SBB 2211

AUGUST 2004

3 HOURS (100 marks)

INSTRUCTIONS

Answer Four (4) Questions. Each question carries 25 marks. Where a question contains subdivisions, the mark value for each subdivision is given in brackets. Illustrate your answer where appropriate with large, clearly labelled diagrams.

1. Write brief notes on the following:

- (a) Quality indices (5 marks)
- (b) Inspection (5 marks)
- (c) Statistical Quality Control (5 marks)
- (d) Producer's risk and Consumer's risk (5 marks)
- (e) Right First Time (5 marks)

2. (a) Describe one motivational technique with an example of its application and stating its impact on quality improvement in the long term. (10 marks)

(b) An employment agency monitoring employee absences on a daily basis over a two week period Compiled the following percentage figures.

5.1. 6.0. 4.3. 5.2. 5.1. 6.0. 5.4. 4.9. 5.1. 5.6. 5.2. 4.7. 5.1. 6.0

From these figures calculate:

- (i) mean (3 marks)
- (ii) median (2 marks)
- (iii) mode (2 marks)
- (iv) range (2 marks)

(c) Sketch the following curves:

- (i) Normal distribution (2 marks)
- (ii) Positively skewed distribution (2 marks)
- (iii) Negatively skewed distribution (2 marks)

3.(a) Define the following terms.

- (i) Quality (3 marks)
- (ii) Quality control (3 marks)
- (iii) Quality assurance (3 marks)

(b) Distinguish between control limits and specification limits in a process. (6 marks)

(c) Define the differentiate between the terms variable and attribute. Give two practical Practical examples of each. (10 marks)

4. Describe in detail the various items of **Quality Costs** with which a quality manager might have to deal and use a diagram to explain how he might set about minimizing them as much as possible.

5. (a) Describe briefly how subjective standards differ from standards defined by variable or gauged attributes. (7 marks)

(b) Give an example of a subjective standard and describe how the subjective nature of your example would be controlled. (8 marks)

(c) Distinguish between:

(i) precision and accuracy (6 marks)

(ii) patrol inspection and in-process inspection (4 marks)

Outline the concept of Hazard Analysis Critical Control Points (HACCP). In your outline, include the principles of HACCP the decision tree and the stages of HACCP.

END OF EXAMINATION