

BINDURA UNIVERSITY OF SCIENCE EDUCATION

CHEMISTRY DEPARTMENT

BACHELOR OF SCIENCE HONOURS DEGREE IN CHEMICAL TECHNOLOGY Part (II)

CH206: QUALITY MANAGEMENT SYSTEMS

MAR 2024

2 HOURS

ANSWER QUESTION 1 AND FOUR (4) OTHER QUESTIONS TWO (2) FROM EACH OF THE SECTIONS "A" AND "B". EACH QUESTION CARRIES 20 MARKS

1. (a) Describe the contribution of the following in quality management
 - (i) Crosby [5 marks]
 - (ii) Juran [5 marks]
- (b) Discuss any 3 criticisms of Total Quality Management (TQM). [6 marks]
- (c) Describe 2 types of interlaboratory comparisons. [4 marks]

SECTION A : ANSWER TWO QUESTIONS FROM THIS SECTION

2. (a) Analyse the benefit of quality circles on people's attitudes in an organization. [6 marks]
- (b) What are the consequences of the absence of quality management? [6 marks]
- (c) What is the scope of acceptance-sampling procedure quality control? [8 marks]
3. (a) Describe any 4 fundamental factors that affect quality. [12 marks]
- (b) Describe the importance of measurement uncertainty in quality management. [8 marks]
4. (a) State the 3 Objectives of quality control [6 marks]
- (a) Describe the basis and application of pareto charts and cause effect diagrams [14 marks]

SECTION B : ANSWER TWO QUESTIONS FROM THIS SECTION

5. (a) (i) Several samples of size $n = 8$ have been taken from today's production of cough syrup. The average concentration of alcohol was 3 % and the average sample range was 0.015 %. Find the 99.73% upper and lower control limits. [6 marks]
- (ii) Explain the 2 broad classes of variation causes in the quality of product [6 marks]
- (b) When is method validation necessary? [8 marks]
6. (a) What are the benefits of competitive benchmarking [10 marks]
- (b) Discuss the notion that, a properly deployed Six Sigma program addresses the major issues encountered in TQM [10 marks]
7. (a) ISO 9000 series provides several tangible and intangible benefits. Discuss [15 marks]
- (b) Outline the possible steps in ISO 9000 Registration. [5 marks]

END OF PAPER